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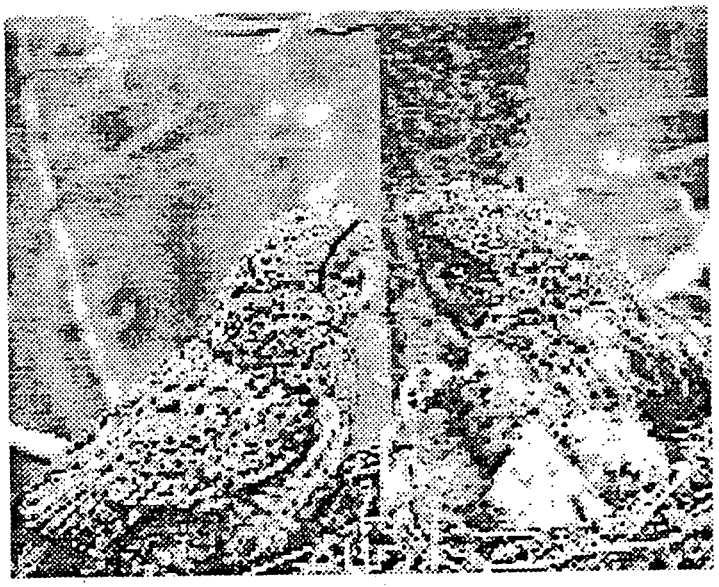
Environmental Restoration Program



Monthly Report for July 1993

Rocky Flats Office

August 20, 1993

Reviewed for Classification/UCNI
BY
DATE 8/11/93

ADMIN RECORD

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EXECUTIVE SUMMARY

SIGNIFICANT ACTIVITIES AND ACHIEVEMENTS FOR JULY 1993

Meetings were held throughout the month among DOE, EPA, CDH, and EG&G on the Final Remedial Investigation (RI) Report for Operable Unit 1 (OU 1). Topics discussed included the contaminants of concern for the human health risk assessment (HHRA) and the contaminants of concern (COC) for the ecological risk assessment. The final contaminant list for the OU1 site was submitted to the EPA, CDH and DOE for final review. Work on other portions of the RI report is proceeding on schedule. The comment responses to all other sections of the report began DOE review at the end of July.

Work on the OU 1 Feasibility Study (FS) was restarted in mid-July with an evaluation of the list of remediation alternatives based on the revised interpretations of the nature and extent of contamination in the Final RI. The majority of the FS work could not be resumed until the revision of the risk assessment progressed enough to determine the final COC list. That resolution was reached and a meeting was held to begin the revision of Technical Memorandum 10 (TM10), *Preliminary Remediation Goals.*

The drilling portion of the OU 2 bedrock field program was completed in July. Of the six A-series wells, three were clean, one contained 9 parts per billion (ppb) trichloroethylene (TCE), and two were dry. One B-series well was drilled next to the A-series well containing the low level of contamination. Slug testing was completed for three wells. Development of the B-series well has begun. Demobilization of the field program is continuing along with slug testing for the remaining wells.

The OU 2 Draft Surface Water Field Treatability Report was delivered to the EPA and CDH on July 13, 1993. The document specifies the following project objectives:

1. Determination of the applicability of the treatment technology
2. Quantification of major operating parameters
3. Evaluation of performance relative to meeting chemical-specific ARARs
4. Re-evaluation of capital and operating costs

This report was originally due on May 18, 1993, and was given an extension by the regulators because of report format and scope changes desired by the regulators and the DOE.

In OU 3, the Wind Tunnel field work was completed during July. The study is designed to quantitatively determine the resuspension potential of OU 3 surface soils. The resuspension potential is a component in the inhalation pathway section of the HHRA.

A presentation was given July 21, 1993, to Jefferson County Open Space on the results of the Area of Concern (AOC) Report. This presentation was requested by Jefferson County to discuss the status of the RCRA Facility Investigation/Remedial Investigation (RFI/RI) and a potential property purchase by Jefferson County.

The OU 4 Solar Ponds Interim Measures/Interim Remedial Action July 7, 1993, milestone, Complete Building 910 Construction, was completed on schedule. This milestone was achieved upon completion of remedial construction activities necessary for Building 910 to become fully operational. All required work has been completed and construction-component tested as applicable. Backfill of the trench that was excavated for the new line from 215D to Building 910 was completed July 9, 1993.

The final legal milestone associated with the diversion of the interceptor trench water and the Building 910 evaporators was defined as *Building 910 Evaporators Fully Operational*. The Rocky Flats commitment to the CDH and EPA was to achieve this milestone on September 9, 1993; Building 910 was operational as of July 27, 1993. Successful operation of the Building 910 facility is a crucial pre-cursor to closure of the Solar Evaporation Ponds and remediation of OU 4.

IAG Performance Indicators for ER Monthly Report

Number of IAG Milestones to Date	Current FY93 (10/1/92 - 9/30/93)	Since IAG Signed (1/22/91)
Scheduled (including approved extensions)	15	91
Met	11	67
Extensions Granted	7	22
Extensions Denied	1	1
In Dispute - OU 4 Phase I Draft/Final Report	1	1
Remaining this FY93 (to 9/30/93)	6	n/a

Deliverable in Review by Regulators	Project	Date Submitted
	OU 13 Final Phase I RFI/RI Work Plan	10 Mar 93
	OU 14 Final Phase I RFI/RI Work Plan	10 Oct 92

Field Work Currently Underway	Project	Scheduled Complete
	OU 2	23 Aug 93
	OU 3	13 Jul 93
	OU 4	Jan 96*
	OU 5	15 Jul 93
	OU 7	30 Apr 93

*for all field work phases

IM/IRA Status	Gallons Treated
OU 1 881 Hillside Treatment	1.5M 1,524,000
OU 2 903 Pad Water Treatment	17.1M 17.5
OU 4	Project is in pre-operations phase

IAG Document Deliverables Due Next 6 months	Due Date	Expected Date
OU 1 Final Phase III RFI/RI Report	15 Nov 93	15 Nov 93
OU 2 FinalTreatability Test Report (RRS)	08 Sep 93	08 Sep 93
OU 4 Draft Phase I RFI/RI Report	21 May 93	15 Apr 94
OU 1 Draft PP	27 Sep 93	30 Sep 94
OU 2 Final Phase II RFI/RI Report	09 Aug 93	06 Jun 94
OU 2 Draft CMS/FS Report	04 Nov 93	30 Oct 96
OU 3 Draft Phase I RFI/RI Report	16 Jul 93	14 Feb 94
OU 3 Final Phase I RFI/RI Report	13 Dec 93	24 Oct 94
OU 5 Draft Phase I RFI/RI Report	30 Nov 93	09 Feb 95
OU 6 Draft Phase I RFI/RI Report	04 Aug 93	11 Jul 94
OU 7 Draft Phase I RFI/RI Report	12 Oct 93	20 Dec 93

Overdue Deliverables	Due Date	Expected Date
OU 2 Draft RFI/RI Report	12 Mar 93	06 Jan 94
OU 3 Draft Phase I RFI/RI Report	16 Jul 93	14 Feb 94

PROBLEMS AND PROGRAMMATIC ISSUES

Procurement Status

Rocky Flats Plant Environmental Restoration Management Procurement Support has been interfacing with Procurement and Environmental Restoration upper level management to begin implementation of a program that will assist in the tracking and acceleration of a portion of the procurement process. This process involves the tracking of all preplanned services and capital equipment for all of ER. In addition, Procurement Support will track any unplanned procurement requests to help in the reporting process required of Procurement by various internal departments and DOE.

This process is expected to prevent the program managers from having to address any "fire drills" related to procurement issues. It will also enable Procurement to maintain a more accurate account of the dollar figures that will be expected to run through its system. It is anticipated that this process will enable program managers and Procurement personnel to access information quicker and more accurately.

Procurement Support continues to address questions and concerns from Environmental Management personnel related to procurement issues and currently has been able to assist many questions to a satisfactory conclusion.

Procurement Support was involved in the coordination between ER/EP personnel and Procurement for an additional Contract Technical Representative (CTR) training class held on July 21, 1993.

Other

A crucial factor resolving the DOE dispute with the regulators over OU 4 IAG milestones is the plant's ability to store Solar Ponds sludge outside of the surface impoundments. Prompt, acceptable permitting of a storage area is, therefore, important to successful dispute resolution. CDH has informally considered EG&G's suggestion for use of RCRA interim status as a framework for storage, though a formal application and determination must be made. The use of interim status may support the schedule goals for removal of the sludge from the ponds. A RCRA Part B Permit Modification could then be requested under less schedule pressure to ensure that long-term storage operation would be properly documented.

HHRA issues are hampering Rocky Flats' efforts to achieve IAG compliance. The methodology for identifying site contaminants cannot be agreed upon among the parties. Also, IAG language requiring DOE to evaluate "risk at the source" has posed technical, cost, and schedule problems owing to lack of a functional definition of "source." Negative schedule impacts have occurred or are occurring in OUs 2, 3, 4, 5, 6, and 7 because of these and

related sub-issues. EG&G, DOE, and EPA are considering a stop work order until this matter is resolved.

There was an accident on July 22, 1993, involving the OU 2 field crew. While using the Decontamination Pad, a subcontractor employee sprayed his foot, causing second degree burns. The Decontamination Pad was shut down immediately and a critique was held on July 23, 1993. Immediate corrective actions were taken. Before the Decontamination Pad was reopened, additional corrective actions were taken to better ensure that this type of incident is not repeated.

The OU 2 Surface Water Field Treatability Unit discharged approximately 7,000 gallons of pH 11 water on July 10, 1993. The water did not contain RCRA "F" listed constituents and the RCRA contingency plan was not implemented. The regulatory agencies were notified and immediate steps were taken to implement measures to prevent similar occurrences in the future.

In OU 3, Offsite Areas, DOE submitted a letter to the regulatory agencies requesting a schedule extension for the Draft and Final Phase I RFI/RI Reports. The Draft RI Report, due to the regulatory agencies on July 16, 1993, was not met because of delays in obtaining permission to sample offsite private land. The DOE has requested that the IAG milestone date of July 16, 1993, for the Draft Phase I RFI/RI Report be extended to February 14, 1994, and the IAG milestone date of December 13, 1993, for the Final Phase I RFI/RI Report be extended to October 24, 1994.

The OU 6 Draft Phase I RFI/RI Report due on August 4, 1993, and the Final Phase I RFI/RI Report due on January 7, 1994, will require schedule extensions because of delays incurred prior to starting field operations. DOE submitted an extension request to the regulatory agencies. The draft report is expected to be completed by July 11, 1994.

NEAR-TERM IAG MILESTONES

OU	Milestone Description	Due to EPA/CDH	Status
2	Submit Draft Phase II RFI/RI Report	12 Mar 93	Delinquent
2	Submit Draft Treatability Test Report	18 May 93	Extended to 13 Jul 93
4	Submit Draft Phase I RFI/RI Report	21 May 93	Extended to 14 Sep 93
2	Submit Subsurface Test Plan Site #2	24 June 93	Complete
2	Submit Final Treatability Test Report	13 Jul 93	Extended to 08 Sep 93
3	Submit Draft Phase I RFI/RI Report	16 Jul 93	Extension request submitted
6	Submit Draft Phase I RFI/RI Report	04 Aug 93	Extension requested
2	Submit Final Phase I RFI/RI Report	09 Aug 93	*
7	Submit Draft Phase I RFI/RI Report	12 Oct 93	*
4	Submit Final Phase I RFI/RI Report	18 Oct 93	Extended to 14 Feb 94
2	Submit Draft CMS/FS Report	04 Nov 93	*
1	Submit Final Phase III RFI/RI Report	04 Jan 93	Extended to 15 Nov 93
5	Submit Draft Phase I RFI/RI Report	30 Nov 93	*
3	Submit Final Phase I RFI/RI Report	13 Dec 93	Extension request submitted
1	Submit Draft Proposed Plan	27 Sep 93	Extension request submitted
1	Submit Final Proposed Plan	04 Jan 94	Extension request submitted
6	Submit Final Phase I RFI/RI Report	07 Jan 94	Extension requested
1	Submit Draft CMS/FS Report	03 Mar 94	Extended to 11 Feb 94
8	Submit Draft Phase I RFI/RI Report	14 Feb 94	*
7	Submit Final Phase I RFI/RI Report	16 Mar 94	*
9	Submit Draft Phase I RFI/RI Report	11 Apr 94	
4	Submit Draft Phase I Proposed IM/IRA Decision Document	14 Apr 94	*
12	Submit Draft Phase I RFI/RI Report	20 Apr 94	*
4	Submit Draft Phase II Work Plan	22 Apr 94	*
5	Submit Final Phase I RFI/RI Report	03 May 94	*
1	Submit Draft Responsiveness Summary	06 May 94	*
2	Submit Final CMS/FS Report	10 May 94	*
2	Submit Draft Proposed Plan	10 May 94	
8	Submit Final Phase I RFI/RI Report	12 Jul 94	*
15	Submit Draft Phase I RFI/RI Report	01 Aug 94	On schedule
1	Submit Final CMS/FS Report	03 Aug 94	*
1	Submit Final Responsiveness Summary	03 Aug 94	*
1	Submit Draft CAD/ROD	03 Aug 94	*
13	Submit Draft Phase I RFI/RI Report	08 Aug 94	*
2	Submit Final Proposed Plan	09 Aug 94	*
10	Submit Draft Phase I RFI/RI Report	25 Aug 94	*
9	Submit Final Phase I RFI/RI Report	06 Sep 94	*
4	Submit Draft Phase I Proposed IM/IRA Decision Document	14 Apr 94	*
7	Submit Draft Phase II RFI/RI Work Plan	13 Sep 94	*
12	Submit Final Phase I RFI/RI Report	15 Sep 94	*
4	Submit Final Phase II RFI/RI Work Plan	19 Sep 94	*
11	Submit Draft Phase I RFI/RI Report	20 Sep 94	*

*Behind original IAG schedule; extension required.

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SECTION 1. INTRODUCTION

This monthly status report presents the current status and technical achievements of the Rocky Flats Environmental Restoration Program for July 1993. This program implements the Interagency Agreement (IAG) among the U.S. Department of Energy, the U.S. Environmental Protection Agency (EPA), and the State of Colorado to investigate, assess, and remediate, where necessary, contaminated areas at or adjacent to DOE's Rocky Flats Plant in Golden, Colorado. This agreement was signed on January 22, 1991. The work is being performed for DOE by EG&G Rocky Flats, Inc.

Section 2.1 of this report highlights significant achievements and summarizes the milestones completed during July 1993. Section 2.2 presents any major unresolved issues of the program. Technical progress, schedule status, and milestone status for each Operable Unit (OU) as well as other program activities are presented in Section 3. Section 4 contains the schedules for routine environmental sampling as required by Paragraph 210 of the Interagency Agreement. Section 5 contains a list that identifies the contractors and subcontractors performing work on the program as required by Paragraph 13 of the IAG.

SECTION 2. PROJECT STATUS

2.1 OU 1 - 881 HILLSIDE AREA

The alluvial ground water at the 881 Hillside Area, located north of Woman Creek in the southeast section of RFP, was contaminated in the 1960s and 1970s with solvents and radionuclides. The area is approximately 2 miles from the eastern, outer edge of the plant's buffer zone at Indiana Street. The various Individual Hazardous Substance Sites (IHSS) that make up OU 1 were being investigated and treated as high-priority sites because of potentially elevated concentrations of organic compounds in the near-surface ground water and the proximity of the contamination to a drainage system leading to an offsite drinking water supply. The selected Interim Remedial Action (IRA) at OU 1 involved construction of an underground drainage system called a French drain that intercepts and contains near-surface ground water flowing from the OU 1 area. The near-surface water is treated at the 891 treatment facility, designed for this purpose, and released onsite into the South Interceptor Ditch (SID) along Woman Creek. Water collected from this ditch undergoes a secondary analysis prior to release. IRA construction was completed in April 1992. The Remedial Investigation and Feasibility Study (RI/FS) to determine the final remedial action are continuing in parallel with operation of the IRA.

2.1.1 OU 1 ASSESSMENT

Scope of Work Changes This Period

None

Technical Approach Changes This Period

None

IAG Milestone Accomplishments

Submit Draft Phase III RFI/RI Work Plan	06 Feb 90
Submit Final Phase III RFI/RI Work Plan	31 Oct 90
Submit Draft Phase III RFI/RI Report	28 Oct 92

Future IAG Milestones Through FY94

Milestone Name	IAG Date Scheduled	Extension Status	Planned Accomplishment Date
Submit Final Phase III RFI/RI Report	04 Jan 93	15 Nov 93	15 Nov 93
Submit Draft CMS/FS Report	31 Mar 93	11 Feb 94	31 Mar 94
Submit Final CMS/FS Report	27 Sep 93	03 Aug 94	30 Sep 94
Submit Draft PP	27 Sep 93		30 Sep 94
Submit Final PP	04 Jan 94		17 May 95
Submit Draft Responsiveness Summary	06 May 94		02 Nov 95
Submit Final Responsiveness Summary	03 Aug 94		12 Apr 96
Submit Draft CAD/ROD	03 Aug 94		12 Apr 96

July Work Activity Status

Remedial Investigation (RI) - Meetings were held throughout the month among DOE, EPA, CDH, and EG&G on the RI Report. Topics discussed included the contaminants of concern for the HHRA and the COC for the ecological risk assessment.

The final contaminant list for the OU 1 site was submitted to the EPA, CDH and DOE for their final review. Work on other portions of the RI report is proceeding on schedule. The comment responses to all other sections of the report began DOE review at the end of July.

Modifications to two contracts were made. The protracted discussions over the contaminant methodology resulted in portions of work being redone, and other portions stalled. The Procurement Department is working to modify the contract for the environmental evaluation (EE) work and for the RI Report. The technical evaluation and cost evaluation were completed for the RI contract, which was negotiated in July, and the Request for Proposals went out for the EE contract modification.

Feasibility Study/Corrective Measures Study (FS/CMS) - Work on the FS was restarted in mid-July with an evaluation of the list of remediation alternatives based on the revised interpretations of the nature and extent of contamination in the Final RI. The majority of the FS work could not be resumed until the revision of the risk assessment has progressed enough to determine the final COC list. That resolution was reached and a meeting was held to begin the revision of TM #10, *Preliminary Remediation Goals.*

The deliverable dates for TMs #10 and #11 are contingent upon completion of interrelated work, which was granted schedule extensions by the regulatory agencies. Since the TMs are not EPA and CDH milestone primary deliverables, they did not receive extensions corresponding with the IAG Table 6 milestones.

The date revisions to EPA are:

TM #10 from July 15, 1993, to Sep 03, 1993
TM #11 from Sep 30, 1993, to Nov 15, 1993

Preliminary discussions are underway with a subcontractor at Hanford to determine if OU 1 is an appropriate site to proceed with an integrated demonstration of an innovative technology for remediation of the suspected dense non-aqueous phase liquids (DNAPLs) in IHSS 119.1.

Technical Memoranda

Project:	OU 1 - 881 Hillside
TM #10	
TM Title:	Preliminary Remediation Goals
TM Status:	Submitted draft TM to DOE in February 1993. DOE comments were completed for Appendix A of TM #10 in May 1993. When preparation is concluded or estimated to be concluded: 08/15/93 Projected date of submittal to EPA/CDH: 09/03/93 Actual date of submittal: N/A Date when comments received: N/A
TM #11	
TM Title:	Alternative Array
TM Status:	Submitted draft TM to DOE: 10/21/93 When preparation is concluded or estimated to be concluded: 10/20/93 Projected date of submittal to EPA/CDH: 11/15/93 Actual date of submittal: N/A Date when comments received: N/A

Planned Work for August

- Deliver TM #10 to DOE.
- Deliver Wetlands Status Report to EPA and CDH on August 30, 1993.
- Complete all comment responses on the Draft Phase III RI Report.
- Complete Final Public Health Evaluation (HHRA) and EE sections for inclusion in the Final RI Report.
- Begin risk analysis of the water from the Building 891 footing drain.
- Finalize FY94 Work Package.

Problems

None

Open Items

None

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2.1.2 OU 1 REMEDIATION

Scope of Work Changes This Period

None

Technical Approach Changes This Period

None

IAG Milestone Accomplishments

Submit Draft Proposed IM/IRA Decision Document	18 Sep 89
Submit Proposed IM/IRA Decision Document	06 Oct 89
Submit Final IM/IRA Decision Document	05 Jan 90
Begin Phase I-A IM/IRA Construction	15 Jan 90
Restart Phase I-A IM/IRA Construction (after shutdown)	20 Jun 90
Begin Phase I-B IM/IRA Construction (ahead of schedule)	28 Sep 90
Submit IM/IRA Implementation Document	22 Feb 91
Begin Phase II-A IM/IRA Construction	01 Apr 91
Begin IM/IRA Testing	05 Aug 91
Begin Phase II-B IM/IRA Construction	03 Sep 91
Complete IM/IRA Construction (891 treatment building)	02 Mar 92
Complete IM/IRA Construction (French drain)	13 Apr 92

Future IAG Milestones Through FY94

None

July Work Activity Status

Total Dissolved Solids (TDS) results of tank 206 (T206) were received and were found to be 245 parts per million (ppm). This result was well below the applicable, relevant and appropriate requirements (ARARs). A portion of T206 was discharged into the wetland area in order to provide the new vegetation with water. The wetland was extremely dry because of the lack of precipitation. Approximately 7,000, 17,000, and 13,000 gallons from T206 were released into the wetland area on July 6, July 8, and July 9, respectively. T206 water remains available for discharge into the wetland area if needed. The remainder of T206 water will soon have to be discharged in order to gain storage capacity. Effluent Tank 207 was being filled as of the end of July.

Results from T205 indicated levels of xylene and iron that exceeded ARARs. However, xylene was also found in a blank sent with the shipment, indicating that the sample analysis may have been contaminated at the laboratory. The tank is currently being retreated and will be resampled for volatile organic compounds (VOCs) (with QA blank) and dissolved iron (the ARAR is actually for dissolved metals, but samples are generally taken for total metals).

Results from resin sample analysis performed by the resin manufacturer indicated that the resins from the ion exchange system were still in good condition.

Several flow failures of Pump 102 (French drain collection well pump) were noted during July. A new pump was ordered and the old pump was removed and replaced. Pump 102 is still not functional; investigations are underway. Pump 101 remains operational and continues to pump French drain water to the treatment facility.

On July 12, 1993, a lightning strike in the vicinity of Building 891 tripped breakers on two pieces of equipment, set off the leak detection alarms for 891 influent piping, and damaged the PA system. Steps are being taken to correct these problems.

Treated ground water this month: 80,000 gallons
Total treated ground water (approximately): 1,500,000 gallons

Planned Work for August

- Continue routine water treatment operations.
- Repair Pump 102.
- Continue work on lightning strike problems.
- Finalize FY94 Work Package.

Problems

No Significant problems; pump 102 remains inoperable.

Open Items

None

2.2 OU 2 - 903 PAD, MOUND, AND EAST TRENCHES

The contamination at the 903 Pad and Mound areas is largely attributed to the storage in the 1950s and 1960s of waste drums that corroded over time, allowing hazardous and radioactive material to leak into the surrounding soil. Additional contamination may have resulted from wind dispersion during drum removal and soil movement activities. The East Trenches Area was used for disposal of plutonium- and uranium-contaminated waste and sanitary sewage sludge from 1954 to 1968. Two areas adjacent to the trenches were used for spray irrigation of sewage treatment plant effluent; some may have contaminants that were not removed by the treatment system.

An IM/IRA provides for surface water in source areas of contamination to be collected, treated, and discharged to the surface water drainage. Operation of a field-scale treatability unit for the South Walnut Creek drainage began in May 1991. The effectiveness of the treatment process will be evaluated at three locations: the entrance to the treatment facility, several points within the facility, and the discharge point. After completion of the field-scale treatability tests, the unit is anticipated to remain in service until the final remedial action is operational. The RI/FS are continuing in parallel with the IRA.

A second IM/IRA was established in late-1991. This Subsurface Investigation Interim Measure/Interim Remedial Action Plan/Environmental Assessment (IM/IRAP/EA) is north of Woman Creek and encompasses the 903 Pad, the Mound Area, and the East Trenches Area of OU 2. This IM/IRAP/EA identifies and evaluates interim remedial actions for removal of residual free-phase VOC contamination from three distinct subsurface environments at OU 2. Each of the VOC-removal actions involve *in situ* vacuum-enhanced vapor extraction technology. The interim remedial actions for the collection of information will aid in the selection and design of final remedial actions that address subsurface, residual free-phase VOC contamination at OU 2.

2.2.1 OU 2 ASSESSMENT

Scope of Work Changes This Period

None

Technical Approach Changes This Period

None

IAG Milestone Accomplishments

Submit Draft Phase II RFI/RI Work Plan (Alluvial)	21 Dec 89
Submit Final Phase II RFI/RI Work Plan (Alluvial)	12 Apr 90
Submit Draft Phase II RFI/RI Work Plan (Bedrock)	05 Feb 91
Submit Final Phase II RFI/RI Work Plan (Bedrock)	02 Jul 91

Future IAG Milestones Through FY94

Milestone Name	IAG Date Scheduled	Extension Status	Planned Accomplishment Date
Submit Draft Phase II RFI/RI Report	12 Mar 93	Denied	16 Dec 93
Submit Final Phase II RFI/RI Report	09 Aug 93	Denied	23 May 94
Submit Draft CMS/FS Report	04 Nov 93		17 Oct 96
Submit Final CMS/FS Report	10 May 94		26 Jun 97
Submit Draft PP	10 May 94		26 Jun 97
Submit Final PP	09 Aug 94		13 Jan 98

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July Work Activity Status

The drilling portion of the bedrock field program has been completed. Of the six A-series wells, three were clean, one contained 9 parts per billion (ppb) trichloroethylene (TCE) and two were dry. One B-series well was drilled next to the A-series well containing the low level of contamination. Slug testing was completed for three wells. Development of the B-series well has begun. Demobilization of the field program is continuing along with slug testing for the remaining wells.

There was an accident on July 22, 1993, involving the OU 2 field crew. While using the Decontamination Pad, a subcontract employee sprayed his foot, causing second degree burns. The Decontamination Pad was shut down immediately and a critique was held on July 23, 1993. Immediate corrective actions were taken. Before the Decontamination Pad was reopened, additional corrective actions were taken to ensure that this type of incident is not repeated.

A small release of water occurred at newly installed well 22593 on July 9, 1993. During compressed air drilling operations at an adjacent location 10 feet north of the well, a fracture developed or was opened between the well and the drilling site. Compressed air was introduced into the existing well and 2 to 3 gallons of water were ejected. This well had recently been sampled and the water did not contain RCRA "F" listed waste. Therefore, the RCRA contingency plan was not implemented. A critique meeting was held on July 9, 1993.

Technical Memoranda

Project:	**OU 2 - 903 Pad, Mound, and East Trenches**
TM #5	
TM Title	Exposure
TM Status	When preparation concluded or estimated to be concluded: 01/15/93 Projected date of submittal to EPA/CDH: 01/15/93 Actual date of submittal: 01/15/93 Date when comments received: 02/11/93 EPA, 03/12/93 CDH
TM #6	
TM Title	Modeling
TM Status	When preparation concluded or estimated to be concluded: 01/15/93 Projected date of submittal to EPA/CDH: 01/15/93 Actual date of submittal: 01/15/93 Date when comments received: 04/1/93 EPA, 03/31/93 CDH

TM #7	
TM Title	Surficial Soils
TM Status	When preparation concluded or estimated to be concluded: 01/7/93 Projected date of submittal to EPA/CDH: 01/7/93 Actual date of submittal: 01/12/93 Date when comments received: 01/21/93 Approved
TM #8	
TM Title	Bedrock
TM Status	When preparation concluded or estimated to be concluded: 03/15/93 Projected date of submittal to EPA/CDH: 03/1/93 Actual date of submittal: 03/15/93 Date when comments received: 04/14/93 EPA, 04/14/93 CDH
TM #8 Addendum	
TM Title	Contingency Plan for Revised Phase II RFI/RI Work Plan (Bedrock)
TM Status	When preparation concluded or estimated to be concluded: Projected date of submittal to EPA/CDH: None Actual date of submittal: Date when comments received:

Planned Work for August

- Complete remaining field work and begin demoblization of the field project.
- Finalize FY94 Work Package.

Problems

There was an accident on July 22, 1993, involving the OU 2 field crew. While using the Decontamination Pad, a subcontractor employee sprayed his foot, causing second degree burns. The Decontamination Pad was shut down immediately and a critique was held on July 23, 1993. Immediate corrective actions were taken. Before the Decontamination Pad was reopened, additional corrective actions were taken to better ensure that this type of incident is not repeated.

Open Items

None

2.2.2 OU 2 REMEDIATION

Scope of Work Changes This Period

None

Technical Approach Changes This Period

None

IAG Milestone Accomplishments

Submit Draft Proposed IM/IRA Decision Document	19 Jun 90
Submit Proposed Plan IM/IRA Decision Document	18 Sep 90
Submit Draft Responsiveness Summary	13 Dec 90
Submit Final Responsiveness Summary and Final IM/IRA Decision Document	11 Jan 91
Field Treatability Test System Installation Complete	10 May 91
Begin Field Treatability Testing (Carbon System)	13 May 91
Submit Draft Treatability Test Report (Phase I GAC)	01 Apr 92
Complete IM/IRA Construction (radionuclides removal system)	24 Apr 92
Begin Field Treatability Testing (radionuclides removal system)	27 Apr 92
Submit Final Treatability Test Report (Phase I GAC)	02 Jun 92
Submit Subsurface Site I Draft Test Plan	29 Oct 92
Submit Subsurface Site I Final Test Plan	12 Jan 93
Submit Subsurface Site II Draft Test Report	24 Jun 93
Submit Draft Surface Water Field Treatability Report	13 Jul 93

Future IAG Milestones Through FY94

Milestone Name	IAG Date Scheduled	Extension Status	Planned Accomplishment Date
Submit Draft Phase II Treatability Study Report	18 May 93	13 Jul 93	13 Jul 93
Submit Final Phase II Treatability Study Report	13 Jul 93	08 Sep 93	08 Sep 93

July Work Activity Status

Subsurface IM/IRA Program - A meeting was held in early July with the subcontractor to resolve design, schedule and operational issues for the Mobil Soil Vapor Extraction Unit (MSVEU). Readiness review requirements were discussed with Environmental Restoration Quality Assurance in advance of the MSVEU operations. A construction inspection of the MSVEU was held at the subcontractor's site. Delivery of the MSVEU to RFP is scheduled for August 3, 1993. A draft of the IM/IRA Implementation and Operation Plan for the Soil

Vapor Extraction Pilot Test was completed and is under review by EG&G.

The second soil vapor survey field report on the Mound Area IHSS 113 was received. This report includes figures with concentration isopleths for primary contaminants as well as analytical results for each sampling point. The Mound Area and the 903 Pad both had volatile concentrations exceeding 10 ppm. One sample from the east side of IHSS 113 (The Mound Area) had a concentration of 16 ppm of tetrachloroethane and a sample from the north side of IHSS 113 had a concentration of 5.4 ppm of 1,1-dichloroethane. Preliminary results indicate that these could be separate plumes. The higher concentrations at the Mound Area were at the edge of the IHSS, thereby reinforcing the need for additional measurements to further define these areas.

Field work was completed on the Baseline OU 2 Subsurface IM/IRA Soil Vapor Survey (SVS), and the field crew was demobilized. All of the samples from the 903 Pad Area were below 10 ppm except for one of the samples south of the pad. The sample location is actually off the pad just south of the south eastern corner of the asphalt. The sample had a concentration of 27 ppm of tetrachloroethane. As with the Mound Area, this sample was taken at the edge of the IHSS and the survey area. Further sampling will be conducted to further define the soil gas plume.

Efforts to subcontract the detailed portion of the SVS continue. The scope has been defined and will consist of detailed surveys at the previous IHSSs along with surveys at IHSSs 109 and 111.1.

Surface Water IM/IRA Program - The OU 2 Draft Surface Water Field Treatability Report was delivered to the EPA and CDH on July 13, 1993.

The document specifies the following project objectives:

1. Determination of the applicability of the treatment technology.
2. Quantification of major operating parameters.
3. Evaluation of performance relative to meeting chemical-specific ARARs.
4. Re-evaluation of capital and operating costs.

This report was originally due on May 18, 1993, and was given an extension by the regulators because of report format and scope changes desired by the regulators and the DOE.

Eighteen sludge drums were transported to Building 664 for Real-Time Radiography (RTR) and final inspection. Twenty empty white drums (for radioactive use) were delivered by RFP Trucking.

On July 17, 1993, the Programmable Logic Controller (PLC) failed to operate. Plant Power personnel responded immediately and located the problem. The problem was a blown fuse located inside the PLC panel. Plant Power replaced the fuse. Because Plant Power responded to the call quickly and provided qualified personnel to troubleshoot the problem, the OU 2 Treatment Facility did not experience any downtime. The OU 2 subcontractor followed all procedures for notification during off-normal incidents.

The acid metering pump in neutralization tank (T-11) was replaced with a smaller unit in order to keep the pH of the effluent as close to 7.0 as possible. The older pump was slightly too large for this tank and produced pH swings when it injected acid into the tank.

Treated Surface Water this month:	812,990 gallons
Total Treated Water:	17.1 million gallons

Planned Work for August

Subsurface IRA Program

- Continue efforts to procure a subcontract for the detailed soil vapor survey.
- Delivery of the Mobil Soil Vapor Extraction Unit is expected in August. This will be used for the subsurface IM/IRA.
- Continue treating water at the OU 2 FTU.
- Finalize FY94 Work Package.

Surface IRA Program

- Comments are expected from the regulatory agencies on the Draft Surface Water IM/IRAP Treatability Study Report; these comments will be addressed and the report finalized.
- Finalize FY94 Work Package.

Problems

The Surface Water Field Treatability Unit discharged approximately 7,000 gallons of pH 11 water on July 10, 1993. The water did not contain RCRA "F" listed constituents and the RCRA contingency plan was not implemented. The regulatory agencies were notified and immediate steps were taken to implement measures to prevent similar occurrences in the future.

Open Items

None

2.3 OU 3 - OFFSITE AREAS

OU 3 can be divided into two categories based on two main activities. The IAG directs activities according to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This involves assessment of contamination in offsite areas also referred to as Contamination of the Land Surface (IHSS 199), Great Western Reservoir (IHSS 200), Standley Lake (IHSS 201), and Mower Reservoir (IHSS 202). The second category responds to a 1985 out-of-court lawsuit settlement, McKay vs. U.S., which directed that the surface soil contamination be remediated. Remedial activities in compliance with the Settlement Agreement (deep disc plowing) began in 1985. The disturbance resulting from remediation is being revegetated with mediocre success. The overall schedule for this activity is determined by the year-to-year success of the revegetation effort and requirements of the landowners.

Scope of Work Changes This Period

None

Technical Approach Changes This Period

None

IAG Milestone Accomplishments

Submit Draft Past Remedy Report	26 Oct 90
Submit Draft Historical Information/ Preliminary Health Risk Assessment Report	09 Nov 90
Submit Final Past Remedy Report	02 Apr 91
Submit Final Historical Information/ Preliminary Health Risk Assessment Report	16 Apr 91
Submit Draft Phase I RFI/RI Work Plan	10 Jul 91
Submit Final Phase I RFI/RI Work Plan	06 Dec 91

Future IAG Milestones Through FY94

Milestone Name	IAG Date Scheduled	Extension Status	Planned Accomplishment Date
Submit Draft Phase I RFI/RI Report	16 Jul 93	Pending	02 Nov 93
Submit Final Phase I RFI/RI Report	13 Dec 93	Pending	20 Jul 94

July Work Activity Status

The Wind Tunnel field work was completed during July. The study is designed to quantitatively determine the resuspension potential of OU 3 surface soils. The resuspension potential is a component in the inhalation pathway section of the HHRA.

A Statement of Work is being developed to procure a subcontractor for weed control activities on the Settlement Agreement property. These weed control activities will include mowing and a fall application of a broad spectrum herbicide. The weed control is necessary to limit weeds and enhance the growth of more desirable plants.

A meeting was held July 15, 1993, with EPA and CDH to discuss the schedule extension request for the Draft and Final RI Reports. EPA would like to see the information on the access permits required for offsite sampling. The difficulty in obtaining the access permits is a factor in requesting the schedule extension. Regulatory agency comments on TMs #1 and #2 were also discussed. The schedule extension request for the OU 3 project is expected to be approved in August.

The Area of Concern (AOC) Report has been revised based on regulatory agency comments. The AOC Report identifies an area where plutonium surface soil contaminations exceed levels that would be regarded as safe based on judgements of acceptable risk. These risk-based soil reference levels can be used to guide decisions regarding the use of OU 3 lands.

A presentation was given on July 21, 1993, to Jefferson County Open Space on the results of the AOC report. This presentation was requested by Jefferson County to discuss the status of the RFI/RI and a potential property purchase by Jefferson County.

Technical Memoranda

Project	OU 3 - Offsite Areas
TM #1	
TM Title	Field Changes to RFI/RI Work Plan
TM Status	When preparation concluded or estimated to be concluded: 05/10/93 Projected date of submittal to EPA/CDH: 05/10/93 Actual date of submittal: 05/10/93 Date when comments received: Not yet received
TM #2	
TM Title	Exposure Scenarios for the HHRA
TM Status	When preparation concluded or estimated to be concluded: 05/12/93 Projected date of submittal to EPA/CDH: 05/12/93 Actual date of submittal : 05/03/93 Date when comments received: 07/15/93
TM #3	
TM Title	Modeling
TM Status	When preparation concluded or estimated to be concluded: 09/29/93 Projected date of submittal to EPA/CDH: 09/29/93 Actual date of submittal : N/A Date when comments received: N/A

TM #4
TM Title — Contaminants of Concern
TM Status — When preparation concluded or estimated to be concluded: 10/18/93
Projected date of submittal to EPA/CDH: 10/18/93
Actual date of submittal : N/A
Date when comments received: N/A

Planned Work for August

- Continue work on the nature and extent of contamination portion of the RI Report.
- Submit JeffCo Bi-annual Report as required under the Settlement Agreement.
- Finalize FY94 Work Package.

Problems

DOE submitted a letter to the regulatory agencies requesting a schedule extension for the Draft and Final Phase I RFI/RI Reports. The Draft RI Report, due to the regulatory agencies on July 16, 1993, was not met because of delays in obtaining permission to sample offsite private land. The DOE has requested that the IAG milestone date of July 16, 1993, for the Draft Phase I RFI/RI Report be extended to February 14, 1994, and the IAG milestone date of December 13, 1993, for the Final Phase I RFI/RI Report be extended to October 24, 1994.

EPA has proposed that DOE stop work on portions of the risk assessment for OU 3. Because of disagreements on the approach to COCs and data aggregation, EPA wishes to invoke part 24 of the IAG (work stoppage). This request for a work stoppage must go to the dispute resolution committee for concurrence.

Open Items

Approval of the OU 3 IAG Milestone extension request and submittal of the Draft Phase I RFI/RI Report to EPA and CDH.

2.4 OU 4 - SOLAR EVAPORATION PONDS

OU 4 is comprised of five solar evaporation ponds: 207A, 207B series (north, center, south), and 207C, which were constructed for treatment and storage of process water from industrial operations. The process water contained treated acidic wastes, industrial liquid wastes (e.g., metal plating solutions), and low-level radioactive wastes.

As technology improved through the early 1960s and 1970s, the ponds were relined with various upgraded materials. However, leakage from the ponds into the soil and ground water was detected. Interceptor trenches were installed in 1971 to collect and recycle contaminated ground water to the ponds and to minimize natural seepage and pond leakage from entering North Walnut Creek. In 1981, these trenches were replaced by the current, larger interceptor trench system (ITS), which returned approximately 4 million gallons of ground water back into the solar evaporation ponds each year.

No additional process water has been pumped into the ponds since 1986. However, the ITS collected and returned ground water into the solar evaporation ponds until new storage tanks were completed and placed in operation in April 1993. The tanks allowed termination of placement of contaminated ground water into the ponds. This placement of water into the ponds had been occurring without meeting Land Disposal Restrictions and Minimum Technology Requirements of RCRA. A new, dedicated Building 910 evaporation-treatment facility became operational in July 1993. This building will process the water stored in the modular tanks.

The Solar Evaporation Ponds Project is comprised of four subprojects: (1) pond sludge processing by means of the Agreement in Principle between DOE and CDH; (2) a water management/treatment by means of the interim Measure/Interim Remedial Action (IM/IRA) Decision Document signed by EPA, CDH and DOE; (3) the OU 4 assessment and remedial action by means of the IAG, which identified the ponds as one of the sixteen operable units (OUs) to be remediated at the Rocky Flats Plant and incorporated the 1988 Ponds-Closure Plan submitted by DOE to the regulators; and (4) pad operations and storage activities that are necessary to meet the plant's RCRA interim status and permit requirements with regards to storage of pond wastes. The water management and pond sludge clean-out are necessary precursors to OU 4 assessment and remediation, and pad operations are necessary support activities at least until the pond sludge waste is disposed.

These four subprojects were planned to close the ponds and remediate the ponds area. In chronological sequence, the project was scoped to (1) remove water from the ponds, (2) provide a treatment facility to replace the ponds as evaporation-treatment and storage units for pond-related contaminated ground water, (3) remove and dispose of pond sludge in compliance with all regulations such as the Land Disposal Restrictions of RCRA, (4) assess the nature and extent of contamination at the ponds, (5) complete a RCRA closure of the impoundments, and (6) remediate the ponds as needed.

The April 1992 IM/IRA was developed as a regulatory agency requirement that was out of scope from the tasks outlined in the IAG. DOE attempted to modify an existing permit for water removal and treatment for liquids in the solar ponds and ground water collected by the ITS, but the regulatory agencies rejected permit modification and required development of an IM/IRA to document operation and use of the proposed water treatment system and provide the permitting mechanism for the system. The development and implementation of this IM/IRA precedes and overlaps the IAG scheduled Phase I RFI/RI field work.

The RCRA/CERCLA investigation Phase I field work began in FY93 and will continue through construct of the final corrective/remedial action. The technical scope to be performed by means of the IAG is funded through the OU 4 Assessment and Remediation area, with the other areas funded to provide necessary precursor and support activities to allow that IAG scope to be completed. There is an IM/IRA scheduled in the IAG that will be completed after results are collected and analyzed from the Phase I RFI/RI field work. The first draft of the IAG IM/IRA is scheduled for delivery in April 1994.

2.4.1 OU 4 ASSESSMENT

Scope of Work Changes This Period None

Technical Approach Changes This Period None

IAG Milestone Accomplishments

Submit Draft Phase I RFI/RI Work Plan	08 Jun 90
Submit Final Phase I RFI/RI Work Plan	26 Nov 90

Future IAG Milestones Through FY94

Milestone Name	IAG Date Scheduled	Extension Status	Planned Accomplishment Date
Submit Draft Phase I RFI/RI Report	21 May 93	14 Sep 93	15 Apr 94
Submit Final Phase I RFI/RI Report	18 Oct 93	14 Feb 94	16 Sep 94
Submit Draft Phase II RFI/RI Work Plan	22 Apr 94		22 Apr 94
Submit Final Phase II RFI/RI Work Plan	19 Sep 94		19 Sep 94

July Work Activity Status

Data evaluation and report writing continue for the OU 4 Phase I RFI/RI Program. Approximately 80 percent of the data is in for all analytes except metals. Approximately 50 percent of the data is in for the metals.

Vadose zone monitoring continues as required in TM #1 in the form of lysimeter sampling, neutron probe analysis, and water level measurements. The OU 4 EE surveys were completed including a habitat, vegetation, and animal survey. RFP Environmental Restoration applied for a soil excavation permit to allow for soil pit sampling.

RFP personnel observed a "sonic drilling" demonstration near Sacramento, California. The horizontal drilling may be used for various ponds to collect subsurface data. A brief report is in the development stages; EG&G is developing a horizontal drilling TM.

Technical Memoranda

Project	OU 4 - Solar Evaporation Ponds
TM #1	
TM Title:	Vadose Zone Investigation
TM Status:	Draft submitted to EPA/CDH: 11/16/92 Comments received: 11/30/92 Conditional Approval: 11/30/92 Projected submittal of Final to EPA/CDH: 12/15/92 Actual submittal date of Final: 12/15/92 Submittal of TM #1 Vadose Zone Schedule: 05/19/93 EPA/CDH Final Approval of TM #1: 06/17/93
TM #2	
TM Title:	Modifications to Field Activities
TM Status:	Draft submitted to EPA/CDH: 03/18/93 Comments received: 05/07/93 Projected submittal of Final to EPA/CDH: 06/07/93 Actual submittal date of Final: 06/09/93 EPA/CDH Final Approval of TM #2: 06/30/93
TM #3	
TM Title:	Environmental Evaluation
TM Status:	Draft submitted to EPA/CDH: 03/19/93 Comments received: EPA 04/21/93 CDH: 06/02/93 Projected submittal of Final to EPA/CDH: 04/30/93 Actual submittal date of Final: 07/02/93 EPA/CDH Final Approval of TM #3: 07/30/93
TM #4	
TM Title:	Human Health Risk Assessment Exposure Scenarios
TM Status:	Draft submitted to EPA/CDH: 0 3/19/93 Comments received: EPA 04/21/93 CDH 04/23/93 Projected submittal of Final to EPA/CDH: 06/11/93 Actual submittal date of Final: 06/11/93 EPA/CDH Final Approval of TM #4: 06/25/93
TM #5	
TM Title:	Human Health Assessment Exposure Models
TM Status:	Projected submittal of Draft to EPA/CDH: 08/01/93 Actual submittal of Draft: 06/24/93 Projected submittal of Final to EPA/CDH: 10/15/93
TM #6	
TM Title:	Contaminants of Concern
TM Status:	Projected submittal of Draft to EPA/CDH: 11/09/93 Projected submittal of Final to EPA/CDH: 12/22/93

TM #7	
TM Title:	Toxicity Assessment
TM Status:	Projected submittal of Draft to EPA/CDH: 11/04/93 Projected submittal of Final to EPA/CDH: 12/22/93
Planned Work for August	• Perform visual survey of Pond 207-B Center. Initiate vertical drilling in 207-B Center. Perform infiltration test hole of TM #1. Continue obtaining soil moisture samples by sampling lysimeter. Continue preparation of the Phase I RFI/RI Report. Finalize TM #8 horizontal drilling for Ponds 207-B South and 207-C and treatment to DOE. • Finalize FY94 Work Package.
Problems	A crucial factor resolving the DOE dispute with the regulators over OU 4 IAG milestones is the plant's ability to store Solar Ponds sludge outside of the surface impoundments. Prompt, acceptable permitting of a storage area is, therefore, important to successful dispute resolution. CDH has informally considered EG&G's suggestion for use of RCRA interim status as a framework for storage, though a formal application and determination must be made. The use of interim status may support the schedule goals for removal of the sludge from the ponds. A RCRA Part B Permit Modification could then be requested under less schedule pressure to ensure long-term storage operation would be properly documented.
Open Items	DOE is considering the proposed simplified process suggested by the regulatory agencies to descope the RFI/RI, expedite the sludge removal from the ponds, and expedite the closure of the ponds.

2.4.2 OU 4 REMEDIATION

Scope of Work Changes This Period	None
Technical Approach Changes This Period	None
IAG Milestone Accomplishments	None. The first IAG remediation milestone for this OU is the Draft Phase I Proposed IM/IRA Decision Document scheduled for April 14, 1994.

Future IAG Milestones Through FY94

Milestone Name	IAG Date Scheduled	Extension Status	Planned Accomplishment Date
Submit Draft Phase I Proposed IM/IRA Decision Document	14 Apr 94		14 Apr 94
Submit Final Phase I Proposed IM/IRA Decision Document	12 Sep 94		12 Sep 94

July Work Activity Status

The July 7, 1993 milestone, Complete Building 910 Construction, was completed on schedule. This milestone was interpreted to be achieved upon completion of initially planned and remedial construction activities necessary for Building 910 to become fully operational. All required work has been completed and construction-component tested as applicable. Backfill of the trench that was excavated for the new line from 215D to Building 910 was completed July 9, 1993.

The final legal milestone associated with the diversion of the interceptor trench water and the Building 910 evaporators was defined as "Building 910 Evaporators Fully Operational." The RF commitment to the CDH and EPA was to achieve this milestone on September 9, 1993; Building 910 was operational as of July 27, 1993. Successful operation of the Building 910 facility is a crucial pre-cursor to closure of the Solar Evaporation Ponds and remediation of OU 4.

Regulatory - A key issue for near-term removal and storage of pond sludge is the acceptability of storage of the sludge on the existing 750 Pad without the need for permit modifications. The last Part B permit modification request for Pad 750 was made in October 1992, and CDH approval is still pending. This experience indicates that permit modifications require long lead times and would impact schedules for sludge removal. The 750 Pad is currently under Interim Status, and it may be possible to clarify the Interim Status designation to explicitly include sludge as well as the cemented waste form. While CDH can no longer make changes to Interim Status, such a clarification may be possible.

The Building 910 evaporator facility, which treats Solar Ponds trench water, is powered by three engines. The initial-approval air emissions permit for the engines required emissions-testing be completed under normal operating load. That testing was successfully completed, and preliminary calculations indicate the engines are well within their permitted emissions rates. The test report will be submitted to DOE. CDH is expected to issue the final permit after receipt of the report.

Pondsludge Status and Issues - Both of the Accelerated Pond Sludge Removal Technical Teams began their deliberations on July 6, 1993. By July 8, 1993, the groups had advanced sufficiently to invite CDH to visit and review their progress. Three container options were selected for detailed evaluation. They are roll-off containers with internal or external secondary containments and frac tanks with external secondary containment. All participants, regulators and management appeared satisfied that the effort was proceeding as planned.

Cost estimates were delivered by the subcontractor for demobilizing the first generation of 'C' Process Train equipment. The estimates differed significantly based on different estimating approaches and a different set of assumptions. A Statement of Work will be created directing HNUS to remove specific items from plantsite. In the interim, Construction Management will be reviewing the estimates and demobilization plans to effect the Subcontract Modification and the beginning of the work.

The partial draft of the Accelerated Pond Sludge Options Report was issued to the DOE and CDH for initial review on July 14, 1993. Comments were incorporated for a final draft issue for review on July 19, 1993.

Water Management - A failure occurred in the pipeline from the Modular Tanks to Building 910, allowing Interceptor Trench System (ITS) water to accumulate in the Modular Tank pump house and the ITS sump. The water was promptly recovered. While the pump house is considered to be adequate containment for the water, the ITS sump is an unlined concrete structure and not a secondary containment. Since the sump is the source of the water that was released, and the volume released represents only a fraction of a percent increase in the water handled on an annual basis through the sump, EG&G expects the potential increase in risk to health and the environment to be insignificant. Water from the Modular Tanks cannot be transferred to Building 910 for treatment until the pipeline is repaired. There is sufficient available capacity in the Modular Tanks to store ITS water during the anticipated repair period, and Building 374 is an alternative treatment facility. Based on informal discussions between DOE and CDH, no impact is expected on meeting the IM/IRA schedule commitments for Building 910.

Planned Work for August

- Begin conceptual design development process for accelerated pond closure option.
- Locate and repair leak in feed line from Modular Storage Tanks to Building 910.
- Submit final RCRA Contingency Plan Implementation Report for Modular Tank pipeline failure.

- Secure and train additional operators for Building 910.
- Finalize FY94 Work Package.

Problems None

Open Items Milestone Schedule for the Solar Evaporation Ponds Water Management IM/IRA:

	Original Date	Revised Date	Status
Begin Construction of Treatment and Storage System	01 Mar 92	06 Apr 92	Complete
Complete Construction of Treatment and Storage System	01 Jun 92	07 Jul 93	Complete
Conduct Trial Run of Treatment System	08 Jun 92	28 Jun 93	Complete
Building 910 Evaporators Fully Functional	15 Jun 92	09 Sep 93*	Complete
Diversion of ITS Water	16 Apr 93	08 Apr 93	Complete

*This milestone was completed on July 27, 1993.

2.5 OU 5 - WOMAN CREEK

This activity encompasses assessment and remediation of 10 IHSSs in the Woman Creek drainage: Original Landfill (IHSS 115); Ash Pits (IHSS 133.1 - 133.4); Incinerator (IHSS 133.5); Concrete Wash Pad (IHSS 133.6); Detention Ponds C-1 and C-2 (IHSS 142.10 and 142.11); Surface Disturbance (IHSS 209), southeast of Building 881. Two additional surface disturbances have been identified and are located, one south of the Ash Pits and a second west of IHSS 209. These last two sites have been included in the OU 5 Work Plan. Possible contamination in this operable unit was caused by landfill operations, storm-water runoff into holding ponds, and ash-pit operations. Constituents in OU 5 are believed to include nitrates, plutonium, uranium, metals, beryllium, solvents, pesticides, oils, paints, and cleaners. Media affected include soils, sediments, surface water, ground water, and air resuspension.

Scope of Work Changes This Period

None

Technical Approach Changes This Period

None

IAG Milestone Accomplishments

Submit Draft Phase I RFI/RI Work Plan	05 Apr 91
Submit Final Phase I RFI/RI Work Plan	30 Aug 91

Future IAG Milestones Through FY94

Milestone Name	IAG Date Scheduled	Extension Status	Planned Accomplishment Date
Submit Draft Phase I RFI/RI Report	30 Nov 93		09 Feb 95
Submit Final Phase I RFI/RI Report	18 Oct 93		18 Oct 95

July Work Activity Status

Field work continued during the month. Observation well points were installed adjacent to ground water monitoring wells in advance of the aquifer testing that started July 20, 1993. The aquifer testing was completed July 30, 1993. Also, water level measurements were taken along Woman Creek.

Technical Memoranda

Project	OU 5 - Woman Creek Priority Drainage
TM #1	
TM Title	Surface Water and Sediments
TM Status	When preparation concluded or estimated to be concluded: 11/30/92 Projected date of submittal to EPA/CDH: 11/30/92 Actual date of submittal: 10/13/92

TM #2	
TM Title	Surface Geophysics
TM Status	When preparation concluded or estimated to be concluded: 11/30/92 Projected date of submittal to EPA/CDH: 11/30/92 Actual date of submittal: 10/13/92
TM #3	
TM Title	Soil Sampling at IHSS 115
TM Status	When preparation concluded or estimated to be concluded: 05/7/93 Projected date of submittal to EPA/CDH: 05/7/93 Actual date of submittal: 01/26/93
TM #4	
TM Title	Soil Sampling at IHSS 133
TM Status	When preparation concluded or estimated to be concluded: 06/7/93 Projected date of submittal to EPA/CDH: 06/7/93 Actual date of submittal: 04/12/93
TM #5	
TM Title	Soil Gas Sampling at IHSS 115
TM Status	When preparation concluded or estimated to be concluded: 05/7/93 Projected date of submittal to EPA/CDH: 0 5/7/93 Actual date of submittal: 03/25/93
TM #6	
TM Title	Cone Penetrometer at IHSS 115
TM Status	When preparation concluded or estimated to be concluded: 04/14/93 Projected date of submittal to EPA/CDH: 04/14/93 Actual date of submittal: 03/25/93
TM #7	
TM Title	Soil Borings at IHSS 133
TM Status	When preparation concluded or estimated to be concluded: 05/07/93 Projected date of submittal to EPA/CDH: 05/07/93 Actual date of submittal: 02/19/93
TM #8	
TM Title	Monitoring Wells at IHSS 115
TM Status	TM 8 has been canceled and is being replaced by a letter outlining the justification behind the location of the three wells in IHSS 115

TM #9	
TM Title	Monitoring Wells at IHSS 133, Ash Pits, Incinerator and Concrete Wash Pad
TM Status	When preparation concluded or estimated to be concluded: 05/14/93 Projected date of submittal to EPA/CDH: 05/06/93 Actual date of submittal: 05/06/93 EPA/CDH comments scheduled: 06/11/93 Actual date of submittal: 06/28/93
TM #10	
TM Title	Soil Borings at IHSS 209
TM Status	When preparation concluded or estimated to be concluded: 03/06/93 Projected date of submittal to EPA/CDH: 03/06/93 Actual date of submittal: 03/06/93
TM #11	
TM Title	Contaminants of Concern
TM Status	To be scheduled in FY94.
TM #12	
TM Title	Exposure Scenarios
TM Status	When preparation concluded or estimated to be concluded: 07/30/93 Projected date of submittal to EPA/CDH: 08/15/93 Actual date of submittal: 07/07/93
TM #13	
TM Title	Modeling
TM Status	When preparation concluded or estimated to be concluded: 07/28/93 Projected date of submittal to EPA/CDH: 08/24/93 Actual date of submittal:
TM #14	
TM Title	Toxicity Assessment
TM Status	To be scheduled in FY94.

Planned Work for August

- The field work is scheduled for completion in the last week of July. TM #12, *Exposure Scenarios* and TM #13, *Modeling*, are in progress. The field demobilization will be completed during the first part of August.
- Finalize FY94 Work Package.

Problems

None

Open Items

None

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2.6 OU 6 - WALNUT CREEK

This activity encompasses assessment and remediation in the Walnut Creek Drainage of 21 IHSS: A-series Detention Ponds, Ponds A-1 through A-4 (IHSS 142.1 through 142.4 and 142.12); the B-series Detention Ponds, Ponds B-1 through B-5 (IHSS 142.5 through 142.9); the North, Pond, and South Area Spray Fields (IHSS 167.1, 167.2 and 167.3); the East Area Spray Field (IHSS 216.1), the Trenches A, B and C (IHSS 166.1, 166.2 and 166.3); the Sludge Dispersal Area (IHSS 141); the Triangle Area (IHSS 165); the Old Outfall Area (IHSS 143). and the Soil Dump Area (IHSS 156.2).

Completion of field operations resulted in obtaining the following samples from the IHSSs in OU 6: stream sediment, pond sediment, surface soil, subsurface soil, stream water, pond water, and ground water.

Eleven new ground water monitoring wells, installed in OU 6 to supplement four existing wells, are being sampled each quarter for a minimum of 1 year. Geophysical surveys and radiation surveys were performed in selected areas to supplement the sampling activities.

The regulatory agencies have proposed a new IM/IRA on the operation of the RFP Ponds. If approved, this IM/IRA would affect the RFP ponds, including OU 6, placing them under CERCLA rather than the National Pollution Discharge Elimination System (NPDES).

Scope of Work Changes This Period None

Technical Approach Changes This Period None

IAG Milestone Accomplishments

Submit Draft Phase I RFI/RI Work Plan	19 Apr 91
Submit Final Phase I RFI/RI Work Plan	16 Sep 91

Future IAG Milestones Through FY94

Milestone Name	IAG Date Scheduled	Extension Status	Planned Accomplishment Date
Submit Draft Phase I RFI/RI Report	04 Aug 94		21 Oct 94
Submit Final Phase I RFI/RI Report	07 Jan 94		10 Jul 95

July Work Activity Status

An extension request for the August 4, 1993, Draft Phase I RFI/RI Report Interagency Agreement (IAG) milestone was completed by DOE for delivery to EPA. The requested extension due date is July 11, 1994.

Toxicity sampling of the Walnut Creek stream segments during base flow and during a storm event was required in TM#1. The storm-event toxicity sampling was not performed because sample bottle preparation was accidently omitted. All other

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chemical sampling was performed during the storm event. A meeting is being arranged with EPA, CDH, and DOE to discuss the data that have been collected and the necessity of the storm-event toxicity sampling.

Survey locations of the boreholes and wells drilled in OU 6 were provided to the Rocky Flats Environmental Database System (RFEDS)/ArcInfo Department. All remaining sample locations for soil and water are being obtained.

Technical Memoranda

Project	OU 6 - Walnut Creek
TM #1	
TM Title	Work Plan Modifications
TM Status	Approved by EPA: 01/08/93
TM #2	
TM Title	Exposure Scenarios
TM Status	When preparation concluded or estimated to be concluded: 07/01/93 Projected date of submittal to EPA/CDH: 07/09/93 Actual date of submittal: 07/01/93 Date when comments received: N/A
TM #3	
TM Title	Modeling Surface and Ground Water
TM Status	When preparation concluded or estimated to be concluded: 07/01/93 Projected date of submittal to EPA/CDH: 08/01/93 Actual date of submittal: N/A Date when comments received: N/A
TM #4	
TM Title	Contaminants of Concern
TM Status	When preparation concluded or estimated to be concluded: 09/15/93 Projected date of submittal to EPA/CDH: TBD Actual date of submittal: N/A Date when comments received: N/A
TM #5	
TM Title	Toxicity Factors
TM Status	When preparation concluded or estimated to be concluded: 09/15/93 Projected date of submittal to EPA/CDH: TBD Actual date of submittal: N/A Date when comments received: N/A

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Planned Work for August

- Categorize OU 6 information in the database for purposes of risk assessment and modeling.
- Finalize FY94 Work Package.

Problems

The Draft Phase I RFI/RI Report due on August 4, 1993, and the Final Phase I RFI/RI Report due on January 7, 1994, will require schedule extensions because of delays incurred before starting field operations. DOE is preparing an extension request to be submitted to the regulatory agencies.

Work on the COC TM is being delayed pending a decision by EPA, CDH, DOE, and EG&G on an agreed-upon methodology for the HHRA.

Open Items

Approval of the milestone extension request.

2.7 OU 7 - PRESENT LANDFILL

The Present Landfill - OU 7 is located north of the plant complex on the western edge of an unnamed tributary of North Walnut Creek and is comprised of two IHSSs. IHSS 114 includes landfill waste and leachate at the Present Landfill, soils beneath the landfill potentially contaminated with leachate, and sediments and water in the East Landfill Pond. IHSS 203 contains potentially contaminated soils at the Inactive Hazardous Waste Storage Area. A section of the Present Landfill located in the southwest corner was used between 1986 and 1987 as a temporary storage area for hazardous waste. The Present Landfill began operation in August of 1968 and was originally constructed to provide for disposal of RFP's nonradioactive and nonhazardous wastes. In September 1973, tritium was detected in leachate from the landfill. During the mid-1980s, extensive investigations were conducted on the waste streams (types) placed into the landfill; consequently, hazardous wastes/hazardous constituents were identified. Although currently operating as a nonhazardous sanitary landfill, the facility is considered an inactive hazardous waste disposal unit undergoing RCRA closure.

Scope of Work Changes This Period

None

Technical Approach Changes This Period

None

IAG Milestone Accomplishments

Submit Draft Phase I RFI/RI Work Plan	08 Jun 90
Submit Final Phase I RFI/RI Work Plan	28 Aug 91

Future IAG Milestones Through FY94

Milestone Name	IAG Date Scheduled	Extension Status	Planned Accomplishment Date
Submit Draft Phase I RFI/RI Report	12 Oct 93		20 Dec 93
Submit Final Phase I RFI/RI Report	16 Mar 94		02 Sep 94
Submit Draft Phase II RFI/RI Work Plan	13 Sep 94		07 Aug 95

July Work Activity Status

The proposal to modify the OU 7 IAG schedule was sent to the regulatory agencies on July 24, 1993.

Efforts continue to identify the nature and extent of contamination at OU 7. A meeting was held July 22, 1993, to determine how the data will be grouped to compare to background. Data will be grouped as follows:

1. groundwater - by hydrostratigraphic units: upper = alluvium and weathered claystone; lower = unweathered claystone.

2. geologic materials - into two units: alluvium and claystone (weathered and unweathered).

These determinations were based on paired statistical comparisons between units for the revised background geochemical report and sample sizes for OU 7 samples.

Technical Memoranda

Project	OU 7 - Present Landfill
TM #1	
Title:	Exposure Scenarios
Status:	Initial reviews completed by DOE/HQ and RFO. Review completed by EPA and CDH. Response summary developed and submitted to all parties for review. Reviews complete. Revised response summary completed May 25, 1993, with a final review underway prior to transmittal to the agencies.
TM #2	
Title:	Model Description
Status:	Transmitted to EPA and CDH for review: 01/08/93 Initial review by EPA, CDH, and DOE: 04/30/93 Draft response summary complete: 05/25/93
TM #3	
Title:	Addendum to Final Phase I RFI/RI Work Plan. Surface Soil and Asbestos Pit Disposal Area Characterization Plan.
Status:	Transmitted to DOE for review: 02/05/93 Transmitted to EPH and CDH for review: 02/08/93 Comments received: 04/26/93 Conditional approval by EPA and CDH received: 02/22/93 Clarification of outstanding comments from EPA and CDH received: 05/03/93
TM #4	
Title:	Contaminants of Concern
Status:	Under development

Planned Work for August

- Rescope the OU 7 IAG schedule with the regulatory agencies.
- Continue identification of the nature and extent of contamination.
- Finalize FY94 Work Package.

Problems

There has not been resolution among EPA, CDH, DOE, and EG&G on a methodology for comparison of site data to background and subsequent identification of contaminants of concern.

Open Items

None

2.8 OU 8 - 700 AREA

The 24 IHSSs that constitute OU 8 encompass separate sites inside and around the production area of the Rocky Flats Plant. Contamination sources within the various IHSSs include above ground and underground tanks, equipment washing areas, and releases inside buildings which potentially affected areas outside the buildings. Contaminants from these sources may have been introduced into the environment through spills on the ground surface, underground leakage and infiltration, and in some cases through precipitation runoff. The chemical composition of the contaminants also varies widely between the IHSSs, ranging from low-level radioactive mixed wastes to nonradioactive organic and inorganic compounds.

Scope of Work Changes This Period

None

Technical Approach Changes This Period

None

IAG Milestone Accomplishments

Submit Draft Phase I RFI/RI Work Plan	01 May 92
Submit Final Phase I RFI/RI Work Plan	01 Dec 92

Future IAG Milestones Through FY94

Milestone Name	IAG Date Scheduled	Extension Status	Planned Accomplishment Date
Submit Draft Phase I RFI/RI Report	14 Feb 94		02 Nov 15
Submit Final Phase I RFI/RI Report	12 Jul 94		19 Jul 16

July Work Activity Status

The revised Health and Safety Plan (HSP) for implementation of nonintrusive field work for the Industrial Area Operable Units (IA OUs), OUs 8, 9, 10, 12, 13, 14 was delivered to EG&G on July 1, 1993. EG&G completed the internal review of the HSP on July 13, 1993. Comments have been delivered to the sub-contractor for revision prior to delivery for a final draft to DOE. The revised HSP is expected to be completed by August 6, 1993.

Weekly meetings are scheduled with DOE and EG&G to discuss initial implementation of field work for OU 8. These meetings will continue through field work implementation.

The second subcontract negotiations meeting for the IA OU contract was held on July 9, 1993. Contract award will follow completion of the negotiations.

The activities for FY94 continue to be entered into a software scheduling program, along with the logic ties, to facilitate the integration of activities with the other Integrated OUs (8, 9, 10, 12, 13, and 14). This exercise will lead into development of the scope and schedule for activities beginning in FY95 and beyond.

Technical Memoranda	None
Planned Work for August	• Complete field work Implementation Plan and the HSP. Field work is scheduled to begin by August 25, 1993, pending approval of the Implementation Plan and the HSP. • Deliver responses to the CDH comments on the Phase I RFI/RI Work Plan to DOE. • Finalize FY94 Work Package.
Problems	None
Open Items	A decision on what future land use scenario to use for the baseline risk assessment is pending.

2.9 OU 9 - ORIGINAL PROCESS WASTE LINES

This activity involves characterizing a series of tanks and associated process waste lines. The original Process Waste Lines (OPWL) consisted of 35,000 feet of buried pipeline that transferred process wastes from production buildings to onsite treatment plants. A system of 60 designated pipe section, 46 storage tank sites, and 3 other areas of suspected press waste leakage are included in OU 9. The system was placed into operation in 1952, and additions were made to the system through 1975. The original system was replaced over the 1975-1983 period by the new process waste system. Some tanks and lines from the original system were incorporated into either the new process waste system or the fire water deluge collection system.

The original system is known to have transported or stored various aqueous process wastes containing low-level radioactive materials, nitrates, caustics, and acids. Small quantities of other liquids were also introduced in the system, including medical decontamination fluids, miscellaneous laboratory liquids, and laundry effluent. The RFI/RI plan includes inspection and sampling of the OPWL tanks and pipelines that are accessible and soil sampling to determine the extent of contamination in the vadose zone. The soil sampling will be performed by installing test pits and boring where known or suspected releases occurred, near pipe joints and valves, at approximately 200-foot intervals along the pipelines, and by installing borings around the outdoor tanks. Soil characterization studies will determine the need for soil removal and/or treatment. The results of the RFI/RI will determine the need for interim and/or final remediation action.

Scope of Work Changes This Period

None

Technical Approach Changes This Period

None

IAG Milestone Accomplishments

Submit Draft Phase I RFI/RI Work Plan	08 Jun 90
Submit Final Phase I RFI/RI Work Plan	26 Nov 91

Future IAG Milestones Through FY94

Milestone Name	IAG Date Scheduled	Extension Status	Planned Accomplishment Date
Submit Draft Phase I RFI/RI Report	11 Apr 94		04 Jan 01
Submit Final Phase I RFI/RI Report	06 Sep 94		16 Sep 03

July Work Activity Status

On July 23, 1993, the RFP Change Control Board awarded FY93 funding for early start of tank inspection and sampling.

Site Walk portions of Data Compilation will begin. Each tank site will be visited and a sketch map will be prepared indicating specific locations to take soil samples, residue samples, etc. This will form the basis for TM #1, *Field Sampling Plan, Part 1 Tanks*, which is being expedited.

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A letter subcontract with a subcontractor was opened up for all tasks on July 13, 1993. RFP began work on Additional Data Compilation tasks on July 14, 1993. Work is being prioritized as follows:

1. TM #1, *Field Sampling Plan, Part 1 Tanks*, can be written after the site walks and cross-referencing existing information in OU 9 Work Plan and Appendices. The contractor will "fast-track" this section of TM #1.

2. TM #1, *Field Sampling Plan, Part 2 Pipelines*, will require gleaning data from engineering drawings and other sources, posting proposed test pit locations on the maps, and verifying accessibility in the field by site walks. This section of the Field Sampling Plan (FSP) is the second priority.

3. FSP sections dealing with soil contamination by sub-surface injections are the third priority, and Under-Building Contamination (UBCs) and the Sanitary Sewer System are lowest priority.

DOE has notified CDH that OU 9 will not meet IAG Milestones. On July 16, 1993, DOE wrote a letter CDH, which states the reason that surface radiation survey, tank sampling/inspection, and additional data compilation tasks have not been completed because of limited funding in FY93. Pending the finalization of funding for FY94, RFP plans to initiate as much RFI/RI field work as possible at OU 9. However, FY94 funding may be inadequate to meet all IAG commitments.

The activities for FY94 continue to be entered into a software scheduling program, along with the logic ties, to facilitate the integration of activities with the other Integrated OUs (8, 9, 10, 12, 13, and 14). This exercise will lead into development of the scope and schedule for activities beginning in FY95 and beyond.

Technical Memoranda

Project	OU 9 - Original Process Waste Lines
TM #1	
TM Title	Stage 1 Field Sampling Plan
TM Status	When preparation concluded or estimated to be concluded: 09/93 Projected date of submittal to EPA/CDH: 09/93 Actual date of submittal: N/A Date when comments received: N/A

Planned Work for August	• Conduct inspections of all 40 OPWL tank sites to prepare tank portion of TM #1, *Field Sampling Plan.* • Finalize FY94 Work Package.
Problems	None
Open Items	None

2.10 OU 10 - OTHER OUTSIDE CLOSURES

OU 10 is made up of 15 IHSSs scattered throughout the plant, which consist of various hazardous waste units. Six of the IHSSs are located in the Protected Area (PA), two are located in the buffer zone near the present landfill, and the remaining IHSSs are located near various buildings throughout the plant. The types of wastes identified at these sites range from pondcrete/ saltcrete storage and drum storage to a utilization yard with waste spills. A Final Phase I RFI/RI Work Plan is currently in preparation. The primary components of the RFI/RI Work Plan for OU 10 will be an FSP, Baseline Risk Assessment Plan (BRAP), and an EE Work Plan.

Scope of Work Changes This Period

None

Technical Approach Changes This Period

None

IAG Milestone Accomplishments

Submit Draft Phase I RFI/RI Work Plan	27 Nov 91
Submit Final Phase I RFI/RI Work Plan	01 May 92

Future IAG Milestones Through FY94

Milestone Name	IAG Date Scheduled	Extension Status	Planned Accomplishment Date
Submit Draft Phase I RFI/RI Report	25 Aug 94		02 Nov 15

July Work Activity Status

High Purity Germanium (HPGe) gamma survey measurements are complete for IHSS 170 and 174 , Property Utilization and Disposal (PU&D) Yard. Preliminary review of the HPGe data revealed possible presence of Americium (Am^{241}) at two locations outside the boundary of IHSS 170/174. Upon recalibration of the HPGe instrumentation, field crews collected data at the locations with anomalous readings. This additional survey failed to confirm the presence of Am241 around the IHSS boundary. Data processing for points in the PU&D yard will continue.

HPGe detector surveys for OU 10 were completed July 19, 1993.

CDH project representative for OUs 9 and 10 were on plant-site July 14, 1993, to observe the HPGe system in use. Unfortunately, because of condensation in the sensor arrays of the HPGe, the system did not perform as expected while CDH was present; however, RFP personnel answered all CDH's questions regarding the HPGe system.

The activities for FY94 continue to be entered into a software scheduling program, along with the logic ties, to facilitate the integration of activities with the other Integrated OUs (8, 9, 10, 12, 13, and 14). This exercise will lead into development of the scope and schedule for activities beginning in FY95 and beyond.

Technical Memoranda

No TMs have been developed for OU 10. The first TM for OU 10 will be for the Nonintrusive fieldwork, tentatively scheduled to be completed in March 1994.

Planned Work for August

- Begin surficial soil (non-rad) soil sampling an IHSSs 170/174, PU&D Yard.
- Complete HPGe data collection and analysis (outside PA).
- Begin HPGe data collection at IHSS 176 (inside PA).
- Finalize FY94 Work Package.

Problems

Delays are being experienced during the HPGe survey because of equipment malfunctions and breakdowns.

Delays are occurring in subcontract award. No additional field work can be performed until the full subcontract is awarded.

Open Items

Initiation of subcontractor activities is contingent upon successful completion of subcontract negotiations and award.

2.11 OU 11 - WEST SPRAY FIELD

The West Spray Field is located within the Rocky Flats Plant buffer zone immediately west of the plant security area. The West Spray Field was in operation from April 1982 to October 1985. During operation, excess liquids from solar evaporation ponds 207-B North and Center (contaminated ground water in the vicinity of the ponds and treated sanitary sewage effluent) were pumped periodically to the West Spray Field for spray application. The spray field boundary covers an area of approximately 105.1 acres, 38.3 of which received direct application of hazardous waste. The RFI/RI process will entail field studies to investigate the presence or absence of hazardous constituents in soil and ground water.

Scope Changes This Period

None

Technical Approach Changes This Period

None

IAG Milestone Accomplishments

Submit Draft Phase I RFI/RI Work Plan	08 Jun 90
Submit Final Phase I RFI/RI Work Plan	02 Jan 92

Future IAG Milestones Through FY94

Milestone Name	IAG Date Scheduled	Extension Status	Planned Accomplishment Date
Submit Draft Phase I RFI/RI Report	20 Sep 94		18 Apr 95

July Work Activity Status

Plans have been made with the Ecology and National Environmental Policy Act (NEPA) Division to revise the EE portion of the OU 11 Work Plan, as well as provide a scope and schedule for the ecological field work.

The HPGe instrument is being evaluated as a replacement for surficial soil sampling; surface soils analyzed in 1988 turned up levels of contaminants at or below background, except for a few radionuclides.

The analytes of concern list is being developed, and work has begun developing a borehole and monitoring well section for the Revised Field Sampling Plan for OU 11. This was to be part of Phase II, but as proposals to revise the investigation into a combined phases investigation have been approved by DOE and met favorably by the regulatory agencies, this is being developed during the scheduled Phase I portion of the investigation.

Technical Memoranda

Project	OU 11 - West Spray Field
TM #1 TM Title: TM Status :	Revised Field Sampling Plan and Data Quality Objectives. Under development. HHRA Technical Memoranda scheduled to begin in FY94
Planned Work for August	• Complete a draft revised FSP combining Phase I and II by mid-August 1993. • Rescope the OU 11 IAG schedule with the regulatory agencies based on the streamline proposal. Finalize FY94 Work Package.
Problems	Submittal of Draft and Final Phase I RFI/RI Reports will require milestone extensions because of assessment activity delays.
Open Items	None

2.12 OU 12 - 400/800 AREA

The 400/800 Area involves assessment and remediation of the 10 IHSSs at the 400/800 Area: Multiple Solvent Spills at the West and South Loading Dock Areas (IHSSs 116.1 and 116.2); Fiberglassing Areas North and West of Building 664 (IHSSs 120.1 and 120.2); Cooling Tower Ponds - north, east, south, and west of Building 460 (IHSSs 136.1, and 136.2); Building 881 - Conversion Site (147.2); Radioactive Site - South Area (IHSS 157.2); Acid Leaks (2) (IHSS 187); and Multiple Acid Spills (IHSS 189).

Assessment will consist of preparing a Phase I RFI/RI Work Plan, which will include both an EE and a HHRA. After implementation of this Work Plan, field work and sample analysis will be conducted, data will be an analyzed, and the Phase I RI Report will be prepared. A Phase II Investigation may be performed as necessary. An FS to determine the best methods to remediate the area will be conducted as part of the assessment.

Remediation will consist of development and execution of a Remedial Action Plan based on results obtained during the assessment phase of the project. This process includes review and approval by the regulatory agencies, followed by a Record of Decision (ROD), release to the public, and implementation of the plan.

Scope of Work Changes This Period None

Technical Approach Changes This Period None

IAG Milestone Accomplishments

Submit Draft Phase I RFI/RI Work Plan	08 May 92
Submit Final Phase I RFI/RI Work Plan	05 Oct 92

Future IAG Milestones Through FY94

Milestone Name	IAG Date Scheduled	Extension Status	Planned Accomplishment Date
Submit Draft Phase I RFI/RI Report	20 Apr 94		11 Mar 99
Submit Final Phase I RFI/RI Report	15 Sep 94		17 Nov 99

July Work Activity Status HPGe radiation screening surveys were completed in the 400 Area for OU 12 IHSSs on July 27, 1993. The HPGe detected the presence of uranium, americium, and plutonium within an IHSS of OU 12. It is unclear where the activity is coming from, whether it is present on the surface of the paved area in the 400/800 area, or is coming from some other source inside a building. Further analysis of the HPGe data spectra will be completed in order to accurately determine the source of the radioactivity.

The activities for FY94 continue to be entered into a software scheduling program, along with the logic ties, to facilitate the integration of activities with the other Integrated OUs (8, 9, 10, 12, 13, and 14). This exercise will lead into development of the scope and schedule for activities beginning in FY95 and beyond.

Technical Memoranda

None

Planned Work for August

- Begin surficial soil sampling.
- Complete HPGe surveys in IHSS 147.2.
- Complete evaluation of HPGe data.
- Award contract for the EEs.
- Finalize FY94 Work Package.

Problems

Delays are being experienced during the HPGe Survey because of equipment malfunctions and breakdowns.

Delays are occurring in subcontract award. No additional field work can be performed until the full subcontract is awarded.

Open Items

None

2.13 OU 13 - 100 AREA

Cleanup of the 100 Area involves the assessment and remediation of 14 IHSSs: Chemical Storage - North, Middle, and South Sites (IHSSs 117.1, 117.2 and 117.3); Oil Burn Pit #1 (IHSS 128); Lithium Metal Destruction Site (IHSS 134); Waste Spills (IHSS 148); Fuel Oil Tank (IHSS 152); Radioactive Site - North Area (IHSS 157.1); Radioactive Site - Building 551 (IHSS 158); Waste Peroxide Drum Burial (IHSS 169); Solvent Burning Ground (IHSS 171); Valve Vault 12 (IHSS 186); Caustic Leak (IHSS 190); and the Hydrogen Peroxide Spill (IHSS 191), and the Scrap Metal Site (IHSS 197).

Assessment will consist of preparing a Phase I RFI/RI Work plan, which will include both an EE and an HHRA. After implementation of this Work Plan, field work and sample analysis will be conducted, data will be analyzed, and the Phase I RI Report will be prepared. An FS to determine the best methods to remediate the area will be conducted as part of the assessment.

Remediation will consist of development and execution of a Remedial Action Plan based on results obtained during the assessment phase of the project. This process includes review and approval by the regulatory agencies, followed by a ROD, release to the public, and implementation of the plan.

Scope of Work Changes This Period

None

Technical Approach Changes This Period

None

IAG Milestone Accomplishments

Submit Draft Phase I RFI/RI Work Plan	15 May 92
Submit Final Phase I RFI/ RI Work Plan	12 Oct 92

Future IAG Milestones Through FY94

Milestone Name	IAG Date Scheduled	Extension Status	Planned Accomplishment Date
Submit Draft Phase I RFI/RI Report	08 Aug 94		24 Mar 99

July Work Activity Status

Final revision of the OU 13 Work Plan was transmitted to DOE on July 26, 1993. Approval of the OU 13 Work Plan has not been received.

HPGe activities in OU 13 will begin the first of August. A letter to area management and security was prepared alerting them to these activities. Some temporary movement of materials in IHSS 134 may be required.

The activities for FY94 continue to be entered into a software scheduling program, along with the logic ties, to facilitate the integration of activities with the other Integrated OUs (8, 9, 10, 12, 13, and 14). This exercise will lead into development of the scope and schedule for activities beginning in FY95 and beyond.

DOE, Rocky Flats Plant

Technical Memoranda

None

Planned Work for August

- Finalize FY94 Work Package.
- Begin HPGe activities in OU 13 the first of August.
- Continue planning nonintrusive integrated OUs field activities.

Problems

None

Open Items

Completion of investigations and contract award for the integrated OUs.

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2.14 OU 14 - RADIOACTIVE SITES

Work at the "Radioactive Sites" involves the assessment and remediation of eight IHSSs: Radioactive Site - 700 Area Site #1 and Site #2 (IHSS 131); Radioactive Soil Burial - Building 334 Parking Lot and Soil Dump Area (IHSSs 156.1); Building 444 Parking Lot (IHSS 160) and Building 664 (IHSS 161); and Radioactive Site - 700 Area Site #2 (IHSS 162); and Radioactive Sites - 800 Area which includes the Concrete Slab, Building 886 Spills, and the Building 889 Storage Pad (IHSSs 164.1, 164.2, and 164.3). In 1991, one of two Soil Dump Area IHSSs (156.2) was deleted from OU 14 and added to OU 6.

Assessment will consist of preparing a Phase I RFI/RI Work Plan, which will include both an EE and an HHRA. After implementation of this work plan, field work and sample analysis will be conducted, data will be analyzed, and the Phase I RI Report will be prepared. An FS to determine the best methods to remediate the area will be conducted as a subsequent phase to the assessment phase.

Remediation will consist of development and execution of a Remedial Action Plan based on results obtained during the assessment phase and feasibility study of the project. This process includes review and approval by EPA and CDH, followed by a ROD, release to the public, and implementation of the plan.

Scope of Work Changes This Period	None	
Technical Approach Changes This Period	None	
IAG Milestone Accomplishments	Submit Draft Phase I RFI/RI Work Plan Submit Final Phase I RFI/RI Work Plan	26 Jun 92 19 Oct 92
Future IAG Milestones Through FY94	None	
July Work Activity Status	The activities for FY94 continue to be entered into a software scheduling program, along with the logic ties, to facilitate the integration of activities with the other Integrated OUs (8, 9, 10, 12, 13, and 14). This exercise will lead into development of the scope and schedule for activities beginning in FY95 and beyond.	
Technical Memoranda	The current Five-Year Plan indicates that TM #1, *Human Health Risk Assessment-Exposure Assessment*, and TM #2, *Human Health Risk Assessment-Modeling*, are scheduled for completion in March 1994. These tasks will require rescheduling because of the integration of OUs 8, 9, 10, 12, 13, and 14. Currently, only nonintrusive RI field work is scheduled for OU 14 in FY94. Preparation of the TMs will not begin until FY95. A nonintrusive TM will be prepared in FY94 summarizing the nonintrusive field work and recommending Stage II activities for the remedial investigation intrusive field work.	

Planned Work for August

- Award the subcontract for the integrated OUs to begin the RI.
- Approve the Integrated HSP.
- Review, comment, and revise the Integrated Field Sampling Plan.
- Revise the FY94 Work Package.

Problems None

Open Items The OU 14 Final Phase I RFI/RI Work Plan is still pending approval.

2.15 OU 15 - INSIDE BUILDING CLOSURES

OU 15 is composed of seven IHSSs: IHSS 178, Building 881 - Drum Storage Area; IHSS 179, Building 865 - Drum Storage Area; IHSS 180, Building 883 - Drum Storage Area; IHSS 204, RCRA Unit 45 - Original Uranium Chip Roaster; IHSS 211, RCRA Unit 26, Building 881 - Drum Storage Area; IHSS 212, RCRA Unit 63, Building 374 Drum Storage Area; and IHSS 217, RCRA Unit 32, Building 881 - Cyanide Bench Scale Treatment. The seven IHSSs currently have interim status under RCRA.

Closure Plans for the IHSSs were submitted to CDH during 1988 and 1989. The IHSSs were also included within the IAG to undergo a RCRA Facility Investigation/Remedial Investigation (RFI/RI). During scoping meetings for preparation of the Phase I RFI/RI Work Plan for Operable Unit No. 15 conducted between EPA, CDH and DOE during April 1992, the Closure Plan and RFI/RI Processes were combined. In affect, Clean Closure Performance Standard (6 CCR 1007-3, Part 265.111) will serve as the Applicable or Relevant and Appropriate Requirements for the OU 15 RFI/RI inside buildings and Closure Plans will no longer be prepared. The public comment period required for the Closure Plan process will be fulfilled through the IM/IRA process of the IAG.

Drums containing solids and liquids were stored at the OU 15 IHSSs. Types of waste included oils, coolants and solvents containing chlorinated hydrocarbons (RCRA F001 and F002 wastes) and waste paints and waste metals contaminated with solvents. Hazardous constituents include chlorinated solvents, beryllium, and uranium. The major activity proposed is characterization of contamination associated with the OU 15 IHSSs both inside and outside buildings and, if applicable, decontamination of the concrete floors at the indoor facilities and remediation of contamination outside buildings.

During April 1992, IHSS 215, Unit 55.13-Tank T-40, was deleted from OU 15 and added to OU 9 as part of a IHSS realignment pursuant to Part 32, Paragraph 191 (Additional Work or Modification to Work) of the IAG. This change was recommended by DOE in the OU 9 Phase I RFI/RI Work Plan approved by CDH and EPA in April 1992. Similarly, IHSS 212, RCRA Unit 63 was removed from the OU 15 RFI/RI process since it is currently active as a Drum Storage Area and has been included in the Rocky Flats Plant RCRA Part B TRU Mixed Waste permit application.

Scope of Work Changes This Period	None	
Technical Approach Changes This Period	None	
IAG Milestone Accomplishments	Submit Draft Phase I RFI/RI Work Plan	01 Jun 92
	Submit Final Phase I RFI/RI Work Plan	26 Oct 92

Future IAG Milestones Through FY94

Milestone Name	IAG Date Scheduled	Extension Status	Planned Accomplishment Date
Submit Draft Phase I RFI/RI Report	01 Aug 94		01 Aug 94

July Work Activity Status

The Integrated Work Control Packages (IWCPs) for OU 15 field work in Buildings 881, 865, and 447 have been approved. Field work will begin within Building 881 before other buildings because none of the IHSSs located within Building 881 are Radiologically Controlled Areas (RCAs).

OU 15 field work began upon completion of the Pre-Evolution Briefing on July 26, 1993. A Radiological Worker Permit was obtained which specified Personal Protective Equipment. Radiological sampling for removable contamination will be conducted within Building 881 utilizing EG&G Radiological Protection Technicians.

Document Change Notices (DCNs) were prepared for the Phase I RFI/RI Work Plan for OU 15 in order to clarify which Standard Operating Procedures (SOPs) will be used for field work inside and outside of buildings. The IWCP procedure will be used to define the Handling of Personal Protective Equipment and Handling of Decontamination Water and Wash Water within buildings. An IHSS inspection form/checklist has been prepared to document the results of IHSS inspections required by Stage I of the OU 15 Work Plan. The IHSS inspection form/checklist will be incorporated within the OU 15 Work Plan using a DCN. In addition, the SOP for Collection of Floor/Equipment Rinsate Samples (FO.27) was proposed within Table 10.1 of the OU 15 Work Plan but was not discussed within the OU 15 Work Plan as a separate SOP, but a modification of existing SOPs. A DCN to the OU 15 Work Plan will be used to clarify that a separate SOP was prepared to conduct rinsate sampling (i.e., FO.27).

A Memorandum of Understanding between EG&G Construction Management (CM) and Remediation Project Management was prepared, which defines responsibilities for implementation of OU 15 work.

Additional Quality Assurance Readiness Review requirements are nearly complete and obtaining proper documentation will not delay OU 15 field work.

Technical Memoranda

Preparation of the Field Sampling Plan TM and the Human Health Risk Assessment TM is not anticipated to begin until FY94.

Planned Work for August

- Implement Stage I and II field work (inside buildings) of the Phase I RFI/RI Work Plan within Buildings 881 and 883.

Problems	The June 18, 1993, Internal Work Package Milestone for beginning OU 15 field work was not met. This milestone will not be met until all permitting requirements and Quality Assurance (QA) requirements are met. This issue may cause the delay of the Phase I RFI/RI Report for OU 15, which is an IAG milestone scheduled for August 1, 1994.
Open Items	Fulfill QA and permitting requirements.

2.16 OU 16 - LOW PRIORITY SITES

This assessment activity consists of preparing a "No Further Action Justification Document" for seven IHSSs: Solvent Spill, Antifreeze Discharge, Steam Condensate Leaks (400 and 700 Areas), Nickel Carbonyl Disposal, Water Treatment Plant Backwash Pond, and Scrap Metal Sites. In addition, the draft document must be reviewed, comments resolved, and the draft finalized.

Scope of Work Changes This Period	None	
Technical Approach Changes This Period	None	
IAG Milestone Accomplishments	Submit Draft NFAJ Document	04 Mar 92
	Submit Final NFAJ Document	30 July 92
	Submit Revised Final NFAJ Document	16 Oct 92
Future IAG Milestones Through FY94	None	
July Work Activity Status	The Administrative Record continued to be updated with documents provided by various plantsite departments in preparation for the OU 16 Proposed Plan/Draft RCRA Permit Modification being released to the public sector for comments. The proposed release date of July 6, 1993, will be rescheduled to allow further review time for DOE and EG&G. The EPA project manager continues to incorporate comments provided from EPA.	
Technical Memoranda	None	
Planned Work for August	• Finalize the FY94 Work Package.	
Problems	The ADS and Five-Year Plan for OU 16 indicate no available funding for FY94 because the submittal of the NFAJ document was the final project task.	
Open Items	The administrative ROD process will extend into FY94, a work package was drafted to reflect the scope of work and resources required to complete the planned activities.	

2.17 SITEWIDE ACTIVITIES

Sitewide activities include several tasks that encompass a wide variety of plans, procedures, reports, studies, and other activities required by the IAG and that apply to RFP environmental restoration activities in general. The activities include, but are not limited to, the HSP, a Sampling and Analysis Plan, a Plan for Prevention of Contaminant Dispersion, the Community Relations Plan, the Discharge Limits for Radionuclides Work Plan, Treatability Study deliverables, the Background Study Plan, Administrative Record, State Response (support for CDH oversight), Historical Release Report, Operations Management, Decontamination Facilities, Contractor yard support, ER Waste handling facilities, geologic characterization, hydrogeologic characterization, and ground water monitoring.

Scope of Work Changes This Period

None

Technical Approach Changes This Period

None

IAG Milestone Accomplishments

Submit Draft Background Study Report (Water)	15 Dec 89
Submit Draft Background Study Report (Soils)	15 Dec 89
Submit Draft Community Survey Plan	23 Jan 90
Submit Final Community Survey Plan	22 Mar 90
Submit Draft Health and Safety Plan	15 Aug 90
Submit Draft Quality Assurance Project Plan	29 Aug 90
Submit Draft Standard Operating Procedures	29 Aug 90
Submit Draft Plan for Prevention of Contaminant Dispersion	19 Sep 90
Submit Draft Treatability Study Plan	21 Sep 90
Submit Draft Community Relations Plan	01 Nov 90
Submit Final Health and Safety Plan	12 Nov 90
Submit Revised Background Study Report	21 Dec 90
Submit Final Community Relations Plan	22 Jan 91
Submit Final Quality Assurance Project Plan	01 Mar 91
Submit Final Standard Operating Procedures	01 Mar 91
Submit Draft Radionuclides Discharge Limits Plan	05 Apr 91
Submit Community Relations Plan Responsiveness Summary	21 Jun 91
Submit Final Treatability Study Plan	03 Jun 91
Submit Final Plan for Prevention of Contaminant Dispersion	22 Jul 91
Submit Final Plan Discharge Limits Radionuclides	16 Sep 91
Submit Final PPCD and Responsiveness Summary	25 Nov 91
Submit Draft Historical Release Report	08 Jan 92
Submit Responsiveness Summary for DLRP	31 Jan 92
Submit Final Historical Release Report	03 Jun 92
Submit Annual Treatability Study Report	08 Mar 93

Future IAG Milestones Through FY94

None

July Work Activity Status

Surface Water Management

Pond Water Management IM/IRA - A meeting was held with DOE, EG&G/Surface Water, Wright Water Engineers, and EG&G/Environmental Restoration Management on July 6, 1993. The topic of discussion was the revised IM/IRA schedule. It was decided to shorten the schedule; however, this may be difficult without impacting document quality. The final schedule detailing the project was completed and submitted to DOE on July 9, 1993.

Biweekly working meetings will be held with Wright Water Engineers and EG&G to review progress and resolve issues. Biweekly update meetings will be held with DOE and EG&G. The update meetings will be held on alternate Thursdays following the working meetings. These meetings are designed to ensure that the IM/IRA is on schedule and DOE is apprised of current status, issues, and events.

The EG&G Ecology and National Environmental Policy Act Division (END) is pursuing a Finding of No Significant Impact (FONSI) for the IM/IRA .

Sitewide Treatability Studies

Meetings - A meeting was held on July 15, 1993, among EPA, CDH, DOE and EG&G. The purpose of the meeting was to review and discuss streamlining the content of current work plans and how future work plans and reports might be improved. All parties agreed to reconsider the treatability project schedule. DOE and EG&G will re-evaluate the activity durations and determine whether modifications need to be made, based on recent experience.

Sitewide Treatability Studies on Ion Exchange and Adsorption - Ion Exchange and Adsorption are two of the technologies identified in the Final Site Wide Treatability Plan for further test work and evaluation to determine how effectively they might remove various contaminants from surface and ground water at Rocky Flats.

Adsorption capability testing began on July 12, 1993. Six different materials are being tested to determine their adsorption characteristics for radionuclides and heavy metals from Rocky Flats waters. Water samples were obtained from three different wells on plantsite and combined to form the sample for the test work. The laboratory portion of the adsorption treatability study was completed on July 17, 1993, 2 weeks ahead of schedule. The laboratory work was scheduled to be completed July 30, 1993. Samples were transported to

ACCU-LABS on June 19, 1993, for analyses. The metals results are expected in approximately 4 weeks and the radionuclides in 6 weeks.

During a meeting held July 15, 1993, among representatives from DOE, EG&G, EPA, and CDH, EG&G informally proposed that an additional adsorption test be performed by Harrison-Western (HW). HW has a proprietary membrane technology for removal of hazardous contaminants. HW uses the membrane in conjunction with peatmoss that has been processed into resin beads. RFP personnel visited HW's pilot plant located at ASARCO's Globeville Plant on July 14, 1993. Based upon their visit and reports on the effectiveness of the process, EG&G made the test proposal. All parties agreed, and a formal letter from DOE to the regulators has been prepared to advise them of the action.

Colloid Polishing Filter Method (CPFM) (Techtran) - This process uses a proprietary chemical complexing agent to remove heavy metals and/or radionuclide contaminants from waste water or ground water. The contaminants are removed from the water by precipitation and filtration. Ultimately, the contaminants are contained in a dried filter cake, and the treated water is returned to the environment. Results of preliminary tests carried out at RFP in 1991 were favorable. EPA's Risk Reduction Engineering Laboratory (Cincinnati) is interested in supporting a demonstration of this technology at Rocky Flats through their Superfund Innovative Technology Evaluation (SITE) program.

DOE issued guidance to EG&G that the EPA SITE project will have highest priority in the sitewide treatability program. Further, every effort should be made to complete this project by the end of August 1993. EPA has committed to fund the study.

Samples from each of the temporary modular storage tanks were requested on July 13, 1993, to ensure that the tank contents would be appropriate for the proposed test work. Sampling was scheduled for July 20, 1993, with a 2-week sample analysis turn around expected from the laboratory.

A letter was sent from DOE on June 24, 1993, to CDH and EPA, Region VIII, requesting written approval for the EPA SITE demonstration. It was agreed during a discussion with CDH and EPA on July 15, 1993, that this project fell under CERCLA jurisdiction. The EPA agreed to summarize comments in a letter to DOE.

Status of Treatability Lab in Building 881 - RFP is developing a treatability study laboratory. The laboratory will be used to conduct some of the treatability studies for the sitewide program. This laboratory is ready for experimental work. The

first work scheduled to be carried out is the TRU/Clear (potassium ferrate precipitation) treatability study. Laboratory testing has been conducted in Building 881. The adsorption treatability study test work was started on July 12, 1993.

The treatability study laboratory in Building 881 has been designated as a Radiologically Controlled Area (RCA). This means that anyone entering the laboratory to perform test work or observe must wear a dosimeter and be carrying a respirator. Personnel will be required to update their respirator training and dosimeters if necessary before being allowed into the laboratory.

Community Relations - The ER Community Relations Plan is scheduled to be updated in December 1993. A questionnaire is being developed to send to 35 citizens who will compose a focus group to help revise the plan.

Industrial Area/ Interim Measure/ Interim Remedial Action Plan (IA/ IM/IRAP) - The revised IA IM/IRA scope and schedule was presented to the regulatory agencies on July 20, 1993. The regulators, along with DOE and EG&G, revised the schedule to include concurrent review for DOE/RFO, DOE/HQ, EPA, and CDH. Other economies were realized to shorten the overall schedule. The FY94 work package is now being revised to reflect the new scope and schedule.

Administrative Record (AR) - Totals for the month of June, 1993.

Total documents reviewed and processed for inclusion to the AR file: 411
Total documents in AR to date: 3,236

A transmittal system was developed for the ERM Records Center to transmit documents to the AR for review for inclusion into the AR. This transmittal form will also be used by the subcontractor in assigning AR numbers. Once assigned, the transmittal will be rerouted to the Records Center so that AR numbers can be input into the records database, allowing for cross referencing of Records Center bar code numbers with AR numbers.

Planned Work for August

- Continue work on the Sitewide Treatability Studies including the Colloid Polishing Filter Method (Techtran) associated with the SITE program.
- Continue updates to the Administrative Record.
- Continue Community Relations Activities.
- Continue development of the Surface Water IM/IRA.

Problems	None
Open Items	None

SECTION 3. ROUTINE ENVIRONMENTAL MONITORING

The following generalized sampling schedule for Routine Environmental Monitoring is provided as requested in Section 210 of the IAG. Detailed quarterly monitoring schedules are prepared in advance and are available to EPA and CDH upon request from the Environmental Management Department and EG&G Rocky Flats, Inc. The schedules are lengthy; therefore, they are not reproduced here. An EPA- or State-authorized representative may make arrangements to observe field work and to obtain split or duplicate samples.

3.1 SURFACE WATER AND SEDIMENTS

- Each of the Surface Water Stations (approximately 20 stations) is sampled quarterly.
- Each of the Sediment Stations (approximately 10 stations) is sampled quarterly.
- Each surface water and sediment sample is analyzed for the following parameters:

CLP TCL VOA	Radionuclides
Metals CLP TAL & Non-TAL	Temperature
Field Parameters	TDS/TSS
Specific Conductivity	pH
Dissolved Oxygen (DO)	Nutrients
Major Anions	

- Additionally, sediment samples are analyzed for CLP Semi VOAs, CLP Pesticides/PCBs and Herbicides-619.

3.2 SOILS

- Each of the Soil Stations (located at 1- and 2-mile radii from the plant center) is sampled annually.
- Each soil sample is analyzed for Pu and Am.

3.3 GROUND WATER

A total of 410 ground water stations, including alluvial wells, bedrock wells, and pre-1986 wells, are sampled quarterly. Approximately one-third of the wells are monitored monthly for water levels.

Each ground water sample is analyzed for CLP, TCL, VOAs, TAL, and metals, as well as for the following parameters:

Radiochemical Parameters	Inorganic Parameters	Field Parameters
Gross Alpha	Nitrate/Nitrite	DO
Gross Beta	Total Phosphorous	Specific Conductivity
Plutonium	Ortho-Phosphate	Temperature
Americium	Ammonia	Turbidity
Strontium	TDS	pH
Tritium	Fluorine	
Uranium	Sulfate	
Cesium	Carbonate	
	Bicarbonate	

Radiochemical Parameters	Inorganic Parameters	Field Parameters
	TSS	
	Total CLP Metals & additional metals	
	Dissolved CLP & additional metals	
	Cyanide	
	CLP Volatile Organic Compounds	

SECTION 4. CONTRACTOR/SUBCONTRACTOR IDENTIFICATION

Contractors and subcontractors being used on the RFP ER Program and the work they are performing are identified on the following list as required by paragraph 13 of the IAG.

OU	Project	Subcontractor	Sub-Subcontractor	Work Description	Start Date
1	Assessment	Ebasco	Dames & Moore	CMS/FS Report	Jan 92
1	Assessment	Dames & Moore		Public Health Evaluation	Apr 93
1	Assessment	Roy F. Weston		Revise RI Report, respond to agency comments	Feb 93
1	Assessment	S.M. Stoller		Environmental Evaluation	Apr 93
1	Remediation	Resource Tech. Group, Inc. (RTG)	CH2MHill/OMT	B-891 Treatment System Operations	
2	Assessment	Woodward-Clyde		OU 2 RFI/RI Work Plan (alluvial and bedrock) and RI field work (drilling, well completion/development)	Sep 90
2	Assessment	Ebasco	S.M. Stoller	Environmental Evaluation	Feb 91
	Assessment	Woodward-Clyde	Layne	OU 2 RFI/RI Work Plan (bedrock), surficial soils	Mar 93
2	Remediation	Reidel (RFG in April)		Installation and operation of the water treatment system for South Walnut Creek Phase of OU 2 IRA	Jan 91
3	Assessment	IT Corporation	CH2M Hill	OU 3 Field Work and RI Report	Apr 92
3	Assessment	MRI		Wind Tunnel/Soil Resuspension Study	Aug 92
4	Remediation	HNUS	Halliburton Spec.	Process "C" and "A/B" Pond waste streams to a certifiable form of final disposition	Sep 91
4	Assessment	Applied Environment	Gerashby & Miller Wright Water, Stoller Doty & Associates	Implement the Phase I RFI/RI Work Plan, includes drilling, sampling radiation surveys, etc.	Aug 92
4	Assessment	Dames & Moore	UE&C	Management consulting to implement DOE Order 4700.1 and 4700.5	Jan 93

DOE, Rocky Flats Plant

OU	Project	Subcontractor	Sub-Subcontractor	Work Description	Start Date
5	Assessment	ASI	Dames & Moore Blackhawk GeoWalsh & Assoc. Layne Envir. Service Utility Mgmt. Service S.M. Stoller Adv. Terra Testing	Implementation of OU 5 Work Plan (excluding EE)	Jun 92
5	Assessment	S.M. Stoller		Implementation of EE section of OU 5 Work Plan	Sep 92
6	Assessment	Woodward-Clyde	Lane, Ogden, Geo Environmental	OU 6 RFI/RI Work Plan and Quality Assurance Addendum	Feb 90
6	Assessment	S.M. Stoller		EE	Sep 92
7	Assessment	S.M. Stoller	Walsh & Assoc.	OU 7 RFI/RI Work Plan including EE Plan and QA Addendum	Apr 90
15	Assessment	S.M. Stoller		OU 15 RFI/RI Work Plan	May 92
15	Assessment	ERM-Rocky Mtn.	G.S. Miller, Inc.	Implementation of the RFI/RI Work Plan	Mar 93
SW	HRR	IT Corporation	Doty & Assoc.	Prepare HRR	Feb 91
SW	Adm. Record	QuantaLex		Maintain IAG Administrative Record	Oct 90
SW	Geo. Char.	Jacobs Eng.		Well Abandonment and Replacement	Mar 93
SW	Geo. Char.	Colorado State University		Support M.S. thesis of Structural Geology, of Front Range Area Near RFP	Nov 91
SW	Geo. Char.	S.M. Stoller		Prepare 1992 Annual RCRA Report and Addendum	Jan 93
SW	Geo. Char.	Colorado School of Mines		Masters level training program in ES and Engineering	Aug 92 Dec 94
SW	Geo. Char.	Woodward-Clyde		Support for the SSWMS	Feb 93
SW	Geo. Char.	Colorado State University		Sequential Extraction	April 92
SW	Geo. Char.	University of Colorado		Soil Monitoring Vadose Zone	Jun 92
SW	Geo. Char.	S.M. Stoller		Spatial Analysis/Computer Support	Mar 93
SW	Geo. Char.	Woodward Clyde	SAIC/Wright Water		Jan 93
SW	Monitoring	IT Corporation		Analytical Services for ground water, surface water, and sediment	Jul 90

OU	Project	Subcontractor	Sub-Subcontractor	Work Description	Start Date
SW	QA	SAIC		Develop and implement QA program and field operations oversight	Dec 90
PM	Support	S.M. Stoller		Program Management Support	Oct 92
PM	QA Support	SAIC		Provide QA/QC support to ER Program	Nov 92

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ACRONYMS

ADS	Activity Data Sheet
AIP	Agreement In Principle
ARAR	Applicable or Relevant and Appropriate Requirements
BAT	Best Available Technology
BCP	Baseline Change Proposal
BRAP	Baseline Risk Assessment Plan
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CHWA	Colorado Hazardous Waste Act
CMS	Corrective Measures Study
COC	Contaminant Of Concern
CPT	Cone Penetrometer Testing
CRP	Community Relations Plan
CSU	Colorado State University
D&D	Decontamination & Decommissioning
DCN	Document Change Notice
DLRP	Discharge Limits Radionuclides Plan
DOE	Department of Energy
DQO	Data Quality Objectives
E&WM	Environmental and Waste Management
EA	Environmental Assessment
EE	Environmental Evaluation
EM	Environmental Management
EPA	Environmental Protection Agency
ER	Environmental Restoration
ERA	Ecological Risk Assessment
FIDLER	Field Instrument for Detection of Low Energy Radiation
FS	Feasibility Study
FSP	Field Sampling Plan
FTU	Field Treatability Unit
FYP	Five-Year Plan
GAC	Granular Activated Carbon
GPR	Ground Penetrating Radar
H&S	Health and Safety
H&SP	Health and Safety Plan
HAP	Health Advisory Panel
HHRA	Human Health Risk Assessment
HPGe	High Purity Germanium
HRR	Historical Release Report
IAG	Interagency Agreement
IHSS	Individual Hazardous Substance Site
IM	Interim Measure
IRA	Interim Remedial Action
IRAP	Interim Remedial Action Plan
ITS	Interceptor Trench System
IWCP	Integrated Work Control Package
IX	Ion Exchange
LATO	Los Alamos Technology Office
LL	Low-level
LLMW	Low-level Mixed Waste

MTS	Master Task Subcontract
MSVEU	Mobile Soil Vapor Extraction Unit
NEPA	National Environmental Policy Act
NFAJ	No Further Action Justification
NTS	Nevada Test Site
O&M	Operations and Management
OPWL	Original Process Waste Line
OTD	Office of Technology Development
OU	Operable Unit
PA	Protected Area
ppb	Parts-per-billion
PCCB	Plant Change Control Board
PCP	Process Control Plan
PAC	Potential Area of Concern
PPCD	Plan for Prevention of Contaminant Dispersion
PPE	Personal Protective Equipment
PU&D	Property Utilization and Disposal
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QP	Quality Plan
RAGS	Risk Assessment Guidance for Superfund
RCA	Radiological Control Area
RCRA	Resource Conservation and Recovery Act
RFEDS	Rocky Flats Environmental Database System
RFI	RCRA Facilities Investigation
RFP	Rocky Flats Plant
RI	Remedial Investigation
ROD	Record of Decision
RPT	Radiological Protection Technician
SAR	Safety Analysis Report
SID	South Interceptor Ditch
SMO	Sample Management Office
SOP	Standard Operating Procedure
SOW	Statement of Work
SPPO	Solar Ponds Program Office
TCE	Trichloroethene
TDS	Total Dissolved Solids
TM	Technical Memorandum
TRG	Technical Review Group
TS	Treatability Study
TSS	Total Suspended Solids
UBC	Under Building Contaminations
USFWS	United States Fish and Wildlife Service
UV	Ultraviolet
VOA	Volatile Organic Analyte
VOC	Volatile Organic Compound
WBS	Work Breakdown Structure
WS	Waste Solidification